



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### **Usage guidelines**

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### **About Google Book Search**

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

ACONCAGUA  
AND  
TIERRA DEL FUEGO

*A BOOK OF CLIMBING, TRAVEL  
AND EXPLORATION*

*SIR MARTIN CONWAY*

Digitized by Google



2011956558

G918.3 C789A LAC







*H. H. Patterson.*

ACONCAGUA  
AND  
TIERRA DEL FUEGO









THE WEST FACE OF ACONCAGUA,  
FROM THE SMUGGLERS' PASS.

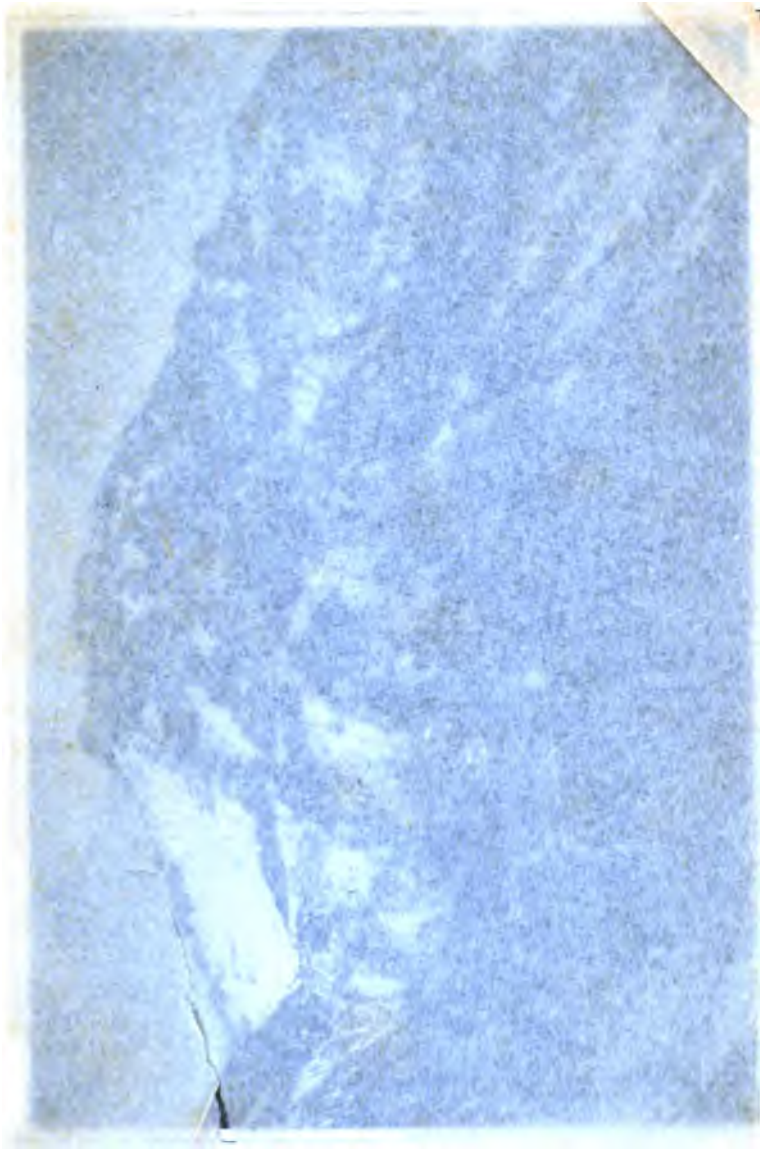
*Frontispiece.*

1860

1861

1862

1863



SONCAGUA,  
GLACIERS' PASS.

# ACONCAGUA

AND

# TIERRA DEL FUEGO

*A BOOK OF CLIMBING, TRAVEL  
AND EXPLORATION*

BY

**SIR MARTIN CONWAY**

**PRESIDENT OF THE ALPINE CLUB,  
SLADE PROFESSOR OF FINE ART  
IN THE UNIVERSITY OF CAMBRIDGE**

*WITH TWENTY-SEVEN ILLUSTRATIONS AND A MAP*

**CASELL AND COMPANY, LIMITED  
LONDON, PARIS, NEW YORK AND  
MELBOURNE. MCMII.  
ALL RIGHTS RESERVED**



THE LIBRARY  
THE UNIVERSITY  
OF TEXAS

Co

DR. PAUL GÜSSFELDT,

WHO MADE THE FIRST ATTEMPT UPON ACONCAGUA IN 1883,

AND WAS ONLY PREVENTED BY ILL-LUCK

FROM MAKING THE FIRST ASCENT:

*Repaid 1.20 G.S.B. - L.A.*

NOV 3 0 1888

462967

**WORKS ON MOUNTAIN-EXPLORATION AND  
TRAVEL BY THE SAME AUTHOR.**

---

**Climbing and Exploration in the  
Karakoram-Himalayas (in 1892)**  
London, 1894.

**The Alps from End to End (in  
1894);** London, 1895; Second Edition, 1899.

**The First Crossing of Spitsbergen  
(in 1896);** London, 1897.

**With Ski and Sledge over Arctic  
Glaciers (Spitsbergen in 1897);**  
London, 1898.

**The Bolivian Andes (in 1898 and  
1900);** London and New York, 1901.

## PREFACE.

---

THIS book is the record of the last of my own mountain-explorations that I shall write. I take leave of it with a regret which fellow explorers will understand. Thirty years of climbing have left me fonder than ever of mountains—of their beauty, their problems, and the activities of mind and body to which mountains give scope. But in looking backward it is the friends I have made amongst them, the men who have co-operated with me on the mountain-side, that awaken in my memory the warmest response, and that arise before me far clearer than do the scenes of their exploits. How many of them, alas! lie silent in the depths of the glaciers they loved, or buried at the feet of the peaks they conquered! To the friends, some of them scarcely less precious, whom my books have been lucky enough to make for



me, I must now bid farewell. The world is wide, and contains other things besides mountains, delightful to study. Each book of life that in turn we open we must one day close—all save the last, which we shall be called from half-read. For all of us there are many kinds of joy as yet unexperienced, many activities untried, many fields of knowledge unexplored. We must not spend too large a fraction of life over one, or the rest will escape us. It is life, after all, that is the greatest field of exploration. We need not travel to remote places to find it. There, no doubt, I shall find again some of the friends that I and the mountains have shared: I will not bid them *adieu*, but *au revoir!*

MARTIN CONWAY.

# CONTENTS.



	PAGE
CHAPTER I:	
VALPARAISO TO THE BATHS OF INCA . . . . .	I
CHAPTER II:	
THE HORCONES VALLEY . . . . .	42
CHAPTER III:	
THE ASCENT OF ACONCAGUA . . . . .	76
CHAPTER IV:	
FROM THE BATHS OF INCA TO CONCEPCION . . . . .	111
CHAPTER V:	
THE SOUTHERN ANDES : AN OROGRAPHICAL SKETCH . . . . .	125
CHAPTER VI:	
FROM VALDIVIA THROUGH SMYTH CHANNEL TO MAGELLAN STRAIT . . . . .	136
CHAPTER VII:	
FUEGIA : HISTORICAL AND GEOGRAPHICAL . . . . .	167

CONTENTS.

CHAPTER VIII:		PAGE
EXPLORATION OF MOUNT SARMIENTO . . .		187

CHAPTER IX:		
PATAGONIA : A GLIMPSE OF THE PAMPAS . . .		210

CHAPTER X.		
HOMeward BOUND . . . . .		238

INDEX . . . . .		247
-----------------	--	-----

## LIST OF ILLUSTRATIONS.



THE WEST FACE OF ACONCAGUA—FROM THE SMUGGLERS' PASS . . . . .	<i>Frontispiece</i>
INCA LAKE . . . . .	<i>To face p.</i> 24
CARAVAN ABOVE PORTILLO . . . . .	" " 24
CARAVAN ON THE CUMBRE ; TORLOSA PEAK IN THE BACKGROUND . . . . .	" " 28
ACONCAGUA FROM THE NORTH . . . . .	" " 38
A STEEP SLOPE OF SCREES IN THE HOR- CONES VALLEY . . . . .	" " 50
FORDING THE HORCONES TORRENT . . . . .	" " 50
THE ACONCAGUA GLACIERS AT DIFFERENT STAGES OF RETREAT . . . . .	" " 56
DIRT-COVERED <i>NIEVES PENITENTES</i> , IN THE HORCONES VALLEY . . . . .	" " 63
ICE TERRACES IN A BRANCH OF THE HOR- CONES VALLEY . . . . .	" " 63
<i>NIEVES PENITENTES</i> IN PROCESS OF FORMATION . . . . .	" " 66
<i>NIEVES PENITENTES</i> : THE LAST STAGE . . . . .	" " 68
MERCEDARIO FROM HIGH UP ON ACONCAGUA LOOKING WEST FROM THE SUMMIT-RIDGE OF ACONCAGUA . . . . .	" " 92
	" " 96

THE ARGENTINE PAMPAS FROM THE SUMMIT-RIDGE OF ACONCAGUA . . . .	<i>To face p.</i>	96
LAKE ARGENTINO . . . . .	" "	134
MAP—MAGELLANES AND FUEGIA . . . .	" "	186
MOUNT BUCKLAND, SEEN THROUGH A TELESCOPE FROM SANDY POINT . . . .	" "	190
THE BASE OF MOUNT SARMIENTO AND THE NORTH AND WEST GLACIERS . . . .	" "	194
MOUNT SARMIENTO FROM PUERTO AÑO VIEJO . . . . .	" "	194
THE NORTH SARMIENTO GLACIER . . . .	" "	196
THE BASE OF MOUNT SARMIENTO AND THE WEST GLACIER . . . . .	" "	196
COCKBURN CHANNEL, FROM THE SIDE OF MOUNT SARMIENTO . . . . .	" "	202
MOUNT SARMIENTO, FROM HALFWAY UP . . . .	" "	205
THE NORTH-WEST RIDGE OF MOUNT SARMIENTO . . . . .	" "	205
LOOKING NORTH-NORTH-EAST FROM THE NORTH SLOPE OF MOUNT SARMIENTO . . . .	" "	206
SHEEP-SHEARING BY MACHINERY AT OTWAY STATION . . . . .	" "	224
FITZROY CHANNEL, FLOWING OUT OF SKYRING WATER . . . . .	" "	224

# ACONCAGUA AND TIERRA DEL FUEGO.

---

## CHAPTER I.

### VALPARAISO TO THE BATHS OF INCA.

**T**HE political boundary between Chile and Peru runs where the relative energies of the people and the fortunes of war have determined. It does not correspond with any change in the character or elevation of the western margin of the continent. Nature, indeed, marks a plain division at two points on the coast: one a little south of Guayaquil, where the luxuriant tropical vegetation ceases and the great coastal desert begins; the other some fifteen hundred geographical miles further south, where this desert ends and vegetation reappears. If, therefore, Nature's indications were followed, it is at this southern point, near the harbour of Coquimbo, that the frontier between Peru and Chile would be found.

A traveller who approaches Chile from the north, coming either from the desert regions of

Peru and Bolivia or merely sailing past their ocean margin, cannot fail to be struck by the first signs of returning fertility—Nature's invitation to man to come and dwell with her. The physical change, however, is preceded by visible signs of the political change. The rocks are engraved with the Chilean badge, and proclaim "Viva Chile" in gigantic letters to the passer-by. The inhabitants, though not racially distinct from the folk a little further north, are plainly animated by another spirit. White labour takes the place of coloured. Presently green vegetation peeps sparsely forth among rocks and sand. With every mile of southward advance the change becomes more pronounced, and the landscape itself soon declares the presence and beneficent activity of man.

I made these observations whilst voyaging in one of the comfortable omnibus steamers that patrol the west coast of South America, at intervals of a few days, from Panama to Valparaiso. Their track is the only high road of the continent, for there is now no north and south *land* route of any length corresponding to the ancient Inca road. All persons whose business or pleasure involves any considerable change of latitude must make their way to the sea by the shortest route, and follow the ocean highway to the port nearest their destination. On these boats, therefore, a traveller comes in contact with the human epitome of South

America — commercial travellers, merchants, engineers, prospectors, adventurers of all sorts, skilled mechanics, politicians, soldiers. You find them all on the move, in a continuous stream. As there is no second-class accommodation on board, and the third-class is only used by the very poorest, the saloon contains the most democratic assemblage. The weather being almost invariably moderate, and generally calm, the steamers are fitted on a different principle from ordinary ocean liners. The cabins open directly on to the upper deck, in a long line extending almost from stem to stern, so that each cabin has a small portion of deck to itself, where the inmates plant their chairs and spend most of their time. As you walk up and down, the whole motley assembly lies before you, each individual occupying the same spot day by day, like the dwellers in a row of cottages enjoying their front gardens under one long common awning. Save for this human interest, few voyages are more monotonous than the South American West Coast route, for the steamers are slow, the stoppages frequent and tedious. When, therefore, I went on deck one Saturday morning it was with no little joy that I heard of our near approach to Valparaiso.

We were passing close to the scenes of hard fighting in the time of the Balmaceda Revolution, stirring combats in which many of the passengers on board had taken part. We passed the mouth  
TxU



of the Aconcagua river, and a row of beautiful suburban seaside resorts, the pride of Valparaiso. Anchoring, at last, off the not unstately town, on the afternoon of Saturday, November 26th, 1898, I set foot on shore after many tiresome delays, and established myself and my two Swiss mountain guides in the excellent hotel kept by Sarah Bernhardt's uncle. The names of my followers were Antoine Maquignaz and Louis Pellissier. Both were natives of Valtournanche; they had been with me for some months in Bolivia, and were getting stale and homesick, eager to return to Europe. I, on the contrary, was just becoming heartily interested in South America, and wanted to explore all the Andes from Panama to Cape Horn. My old indifference to everything South American had given place to great interest in the country, the people, and the boundless future of this marvellous continent, whither romance, expelled from the Old World, is likely to flee for refuge.

I had not a single acquaintance in Chile, and the only introductions in my wallet were to Mr. Gosling, British Minister at Santiago, and to Sir Berry Cusack-Smith, the British Consul-General at Valparaiso. It being Saturday afternoon, the Consulate was closed, and all the English Colony was at a cricket match at Viño del Mar. But time pressed. I had none to spare, if I was to carry out my hastily made plan to rush

for Aconcagua. I had no idea how to get there, no notion how to arrange for the hire of mules at the far end of the railway line, nor to whom to apply for counsel and help. I wanted porters, money, and, more than all, detailed information as to persons, places, and things. Wandering about the streets, planless and puzzled, I was accosted by a German gentleman whom I had met in Peru some months before.

"Hallo! What are you doing here?" he said. "We have read about your climbing Illimani and Sorata, but I did not know that you were coming on here. Where are you going to now?"

"I am going to look at Aconcagua, if I can manage to make the necessary arrangements."

"That's rather a large order, isn't it?" he replied. "I was here when FitzGerald's party made the ascent, and they were on the mountain for several months."

"Yes," I said, "so they were; but they went as a scientific expedition, to make surveys and collections. My only idea is to make one dash at the peak, and take my luck."

"Have you brought your guides with you?" he said.

"Yes," I replied. "I have the same two that you saw—Antoine Maquignaz and Louis Pellissier."

"Won't you want more men than that for so big a mountain?"

"Yes, a few porters and a caravan of mules ; the trouble is how to get them."

"There will be plenty of people to help you do that," he said. "Who do you know in Valparaiso?"

"No one," I answered ; "and I don't even know the way about, nor where to look for a fellow countryman."

"Well, that's easy enough to learn ; this is the principal business street in the town, and everybody you want will be near at hand. Here, for instance, is the office of Messrs. Duncan, Fox, and Co., one of the principal English houses in South America, and the others are not far off."

"That gives me a fair start," I said ; "but no doubt you are busy, so I must not detain you. Good-bye."

Off he went, and I was left standing in the street. After a moment's hesitation, I plucked up courage, entered the house of business he had indicated, and asked to see the senior partner. I was shown in to Mr. P. H. McClelland, and from that instant all my perplexities vanished. He extended the ægis of his influence over me, and gave me the benefit of his experience. In less than half an hour the telegraph wires were carrying messages to various people, and my expedition was definitely set on foot.

To those to whom South America is little more than a name, and Chile and Argentina merely

coloured patches upon a map, a few words of geographical explanation may be helpful. The capital of Argentina is Buenos Ayres, which is in about latitude  $35^{\circ}$  S., near the mouth of the River Plate, on the east coast of South America. Valparaiso, though not the capital, is the centre of commerce and chief port of Chile. It lies in latitude  $33^{\circ}$  S., on the west coast. The railways and mountain road that form the route between these two important cities constitute the principal trans-continental highway of South America.

The railways from these two cities approach one another on opposite sides of the great mountain wall, and will some day, I suppose, be united by a tunnel. At present the continental backbone divides them, and their terminal stations are only connected by a mountain road. The pass, named the "Uspallata Cumbre," is on the frontier ridge between Argentina and Chile, which likewise forms the watershed dividing the streams that flow to the Pacific from those that empty themselves into the Atlantic. In five or six hot months of summer, from about December to May, the pass is easily traversed by mules. Sometimes it is even open to wheel traffic for a month or two, according to the character of the season. It is an absolutely easy mountain highway, and multitudes of passengers cross it, personally conducted. In winter, when the snows have fallen and lie thick on hillside and valley bottom, the passage is

frequently attended with danger, and the pass is often entirely closed for days at a time; yet the mail runners generally manage to cross, though avalanches and storms take toll of human life.

The highest peak of the Andes in this latitude is not situated upon the watershed ridge, but some ten miles to the eastward, and wholly within the Argentine Republic. This is the mountain Aconcagua—my immediate goal. If Aconcagua is not on the watershed, at all events it accommodatingly stands at no great distance from the trans-Andine route. The Horcones Valley, running southward from the mountain's foot, debouches on the high road a few miles within Argentina, just where the torrent of the valley, running from the pass to the railroad, is crossed by a natural bridge, known to fame ever since South America was settled by Europeans. Near the bridge hot springs rise from the ground, forming medicinal baths, which, if tradition is trustworthy, were frequented even in the times of the Incas of Peru. They are called "Los Baños del Inca." An enterprising English physician, Dr. Cotton, has purchased the baths and a tract of country around them; he has built a hotel, and is doing his utmost to improve the neighbourhood generally. His inn was the base of Fitzgerald's party, and must necessarily be the starting point of any expedition attempting the ascent of Aconcagua by the natural line of route.

To Dr. Cotton, accordingly, the first telegram was sent, asking him to despatch a man up the Horcones Valley, to observe the condition of the snow and the likelihood of our being able to reach the base of the mountain with mules. Other inquiries were set on foot, and that was all we could do for the moment. That evening I was Mr. McClelland's guest. His house, overgrown with creepers, lies in a sequestered valley a few miles out of town, surrounded by a lovely garden and a beautiful grove of trees. This was my first view of a Chilean garden, and my first introduction to the luxuriance of nature in this favoured climate. Wherever you can turn water on to the soil vegetation flourishes with astonishing vigour. Geraniums grow in high, thick hedges. Shrubs become trees. Newly planted trees shoot aloft in so short a space of time that the gardener's labour is more in pruning and felling than in planting. Nothing need be coaxed to grow. The gardener's problem is one of restraint, for the tendency is to run to wood. A path between hedges is with difficulty kept open. If a house is waiting to be let for a few months, the garden becomes a thicket.

Such wealth of vegetable life could not fail to delight an eye fresh from Peruvian deserts and salt plains. I thought I had never seen nature more beautifully tamed or happier in the leading-strings of culture, unless it were in the gardens of Algiers.

In the beautiful night that followed, the stars

danced before my window on the calm sea, and when I looked forth early next morning heaven and earth were bathed in the clear radiance of the cloudless sun. The fair bay of Valparaiso to right and left was fringed with a white line of merry surf; the hills stretched upwards inland, higher and higher to a rugged sky line, culminating at the north-east in a bold tooth of rock, so sharp in profile, and with the snow patches on its face so distinct, that I thought it to be some near outlier of the great range.

But the composition and lines of the view were such that the eye was always carried back to this peak, and back again, till the size and distance of the thing became apparent, and I suddenly realised that it was the giant Aconcagua itself. "Come, Maquignaz! Come, Pellissier!" I cried, turning them out of their beds. "Here is our mountain! Here is Aconcagua! What do you think of it?" "That Aconcagua," said Maquignaz; "it must be a long way off. We shall see better when we come close." And back to bed they went. But I stayed at the window for an hour, scanning every detail through my glass, and striving to discover the situation of the slope by which Vines and Zurbriggen made their ascents, till the morning clouds, gathering beneath, wrapped the mountain from my view.

The day that followed was an exciting one, for my purpose became known in the town, and

TxU

many people brought tidings of the condition of the high regions. All agreed that the season was a very late one, and that the winter had been more than usually snowy. Of these two facts there could be no doubt, for the continual traffic maintained over the Cumbre renders the condition of the Andes in the Aconcagua neighbourhood a matter of common knowledge. Never had there been heavier snowfalls or greater avalanches. The Pass had been closed for weeks at a time, and twelve men, trying to force a passage, had been overwhelmed, and had perished together. I saw their graves a few days later, and was shown the point from which the avalanche had descended. The melting of the snows, which ought to be far advanced by the beginning of December, was only just taking place, and the passage of the Cumbre, usually guaranteed to ordinary travellers early in November, was still only undertaken at the traveller's risk.

All the experts prophesied that I should find it impossible to approach the base of Aconcagua for some weeks. What, then, was my joy to receive a telegram from Dr. Cotton with the welcome information that the peon whom he had sent to reconnoitre had found the lower half of the Horcones Valley practicable for mules. Dr. Cotton also stated that the needful transport would be collected in two or three days, and that I need not delay my coming.



I spent altogether only four days at or in the neighbourhood of Valparaiso. During that interval my baggage was entirely overhauled and repacked; half to be left behind, the remainder was grouped in loads suitable for mule transport. Stores were purchased, and another series of inquiries and arrangements made for the later stages of the journey, which will be described in this book. Such matters of organisation occupy much of a traveller's time, and yet more of his thoughts. The success of a journey, measured by the amount of work accomplished in a given time, depends upon the foresight with which possible future difficulties are anticipated and provided against and the skill with which preparations are made. An expedition may be as easily burdened by over-equipment as paralysed by insufficiency of preparation. No one, I suppose, ever actually hits the happy mean, but the nearer it is approached the more successful is the result.

In all high mountain climbing there remains an element of exploration, and this is true even in the Alps. On such a mountain as the Matterhorn, indeed, where hob-nailed boots have scratched a track on the rocks from top to bottom, the element is reduced to a minimum; yet bad weather may set in at any moment, and the rocks become so masked and obscured by snow and ice that nobody could recognise them. On high snow mountains the element of the unknown is always greater, for

the fogs that infest them swallow up the rare landmarks, and wind, rain, snow, or hail efface a traveller's vestiges in an hour. The larger the snowy area to be traversed the more path-finding capacity a climbing party requires. In remote regions of the world the climber's path-finding difficulties begin lower down. Even if some stray traveller has gone before, the most that he can do to help his successor is to record his own faulty or better choices.

One primary fact was certain: the way of approach to Aconcagua was the Horcones Valley, and the actual ascent of the mountain must be made by its north-western face. That was all we knew. It was enough to enable us to go straight for our goal, and avoid wasting time round the outskirts of the peak. There were, however, plenty of possible difficulties to be provided against, for we had little idea where to seek for camping places, how long the ascent would take, or what provision of food would be necessary. All mountains change their character with the weather. The one thing that we knew about Aconcagua was its constant liability to storms from all quarters. I reckoned that the mere accumulation of snow on the mountain itself would be rather a help than a hindrance, if the snow were in good condition; but I was likewise convinced that the ascent of the Horcones Valley might be rendered almost impracticable for mules,

if its upper portion were blocked by beds of soft snow of any considerable depth or extent.

On December 1st we quitted Valparaiso by an early train, having placed ourselves and our baggage in charge of a travelling agency named the "Transportes Unidos." Some thirty other persons were likewise booked to cross the Cumbre, most of them bound for Buenos Ayres. The journey involves passing over the lines or employing the waggons and mules of so many different companies that the intervention of travelling agencies is called for. They alone can issue through tickets and undertake responsibility for the safe conduct of a passenger's baggage. Whether any of these agencies is more reliable than another I cannot say. I only know that my own baggage was broken into; my revolver, a lot of provisions, plates, cups and spoons, and other small articles stolen from it, and that I received no compensation whatever from the guaranteeing agency. The thieves, through good feeling or humour, left me one of everything—one cup, one plate, one knife, one fork, one spoon, so that, after all, I suffered little inconvenience. As for the revolver, I had no use for it.

In a morning of bright sunshine the train carried us past the gardens of Valparaiso and close along the margin of the laughing sea; then turned inland up a winding valley, all green and bushy, with poppies on the slopes. For twenty kilo-

metres the landscape is distinctly suburban, with groups of villas near the railway stations, evidently the homes of business people who work in Valparaiso during the day. It was not till we had passed Quilpue, with its pretty hotel, that the gradient of the line diminished; the sea slope was left behind, and broad stretches of almost level country spread away inland. Already the spring carpet of grass was turning from green to brown in the scorching summer sun. The lack of rain in the immediate neighbourhood of Valparaiso is attested by the innumerable steel-framed windmills, each one raised high on a daddy-long-legs stem, that whirr and flutter beside every villa and homestead. If they were painted in gay colours, as they should be, they would form quite an attractive feature in the landscape. It is a lost chance. But Nature with her bright flowers, at this time of the year at any rate, makes no such mistake. Many of the railway stations were buried in blue convolvulus and jessamine, and cottages and villas were no less gay.

On we went up the gentle slope, and came again among the hills, where the soil is rich, and rain keeps vegetation luxuriant and green. Here were large vineyards and prosperous haciendas, with meadows so rank that the cattle browsing in them were half lost to view. We came close alongside the Aconcagua river, which, by-the-by, does not flow from the mountain of that name, but only

from its neighbourhood. It was raging in a furious brown flood, that filled all its wide channel to the extreme margin, almost level with the fields, so that the pampa grass growing on the banks dipped into the water and was dragged low by the rushing torrent. The turbid waters roared and seemed to be struggling to enlarge their highway, here eating into a gravel-slope, there piling up trees and other floating *débris*. Once or twice a dead animal came by, that had been carried away by the sudden flood in some upland valley. At several places the railway embankment was actually washed by the torrent, and it was impossible to look down from the windows of the train without imagining that the waters might engulf us too.

At the station of Llai-Llai we quitted the train, which went on to Santiago, the Chilean capital. A branch line through a well-cultivated valley carried us to the beautifully situated town of Los Andes. The roads were lined with poplar trees, as well grown as the splendid poplars of Kashmir. Indeed, there was much in the character of the scenery, as in the bright atmosphere, to remind one of that enchanted land. If there had been a few great groups of plane trees, with a mosque or two amongst them, easily could one have fancied himself in the heart of Asia. Here were no terraced fields, as in Peru or Bolivia, still less any sign of diminished population or abandoned

industries ; the irrigation canals were all in perfect repair, and on every side were the signs of agricultural prosperity. At Los Andes we changed trains once more. By a freak of railway mismanagement, due no doubt to some political jobbery, instead of being able to lunch at the station, we were compelled to drive a mile or so into the town and be fleeced at one of the hotels.

After all, we were not much to be pitied, for the situation of the town, in a wide basin of the hills, is splendid, and the view of them in their white cloak of winter snow was sublime. It surprised me to find the snow lying at so low a level at the beginning of the month corresponding to June in the northern hemisphere, and in a latitude approximately equivalent to that of Baghdad or Rawal Pindi. I pictured to myself the great difficulties such conditions might involve before we reached the actual foot of our mountain. Let the reader bear in mind that even in mid-winter the upper parts of mountains covered with perpetual snow are easier to climb than they are in summer. The special difficulty involved in a winter ascent of a high mountain is due to deep accumulations of soft snow on the lower slopes. Thus to climb Mont Blanc in summer from Chamonix such difficulties as there are exist between the point where the glacier is entered and the summit ; but in winter these difficulties are trifling compared with the labour, and even danger,

of mounting the lower slopes between the valley bottom and the glacier. Any sanguine hopes I may have nourished at Valparaiso of finding Aconcagua easy of approach were dissipated the moment I saw the outer buttresses of the great range, which surround Los Andes.

The great mountains did not appear to be visible from the town or its immediate neighbourhood. Obviously the hills in view stretched back to bolder peaks behind. One towering and frowning mass of rock, of gloriously rugged and imposing form, instantly impressed its individuality upon my memory, as now and again a mountain has a way of doing, so that thereafter, from whatever point of view I saw it (and I looked down upon it from the summit of Aconcagua itself), I never had the smallest difficulty in recognising it again. It is a buttress of the great Navarro Peak, and is well named "The Lion." It rises a little distance south of the point where the mule-pass traverses the Andes watershed.

A train up the narrow-gauge so-called Trans-Andine Railway swept us out of the town and up on to a broad bench of ancient *débris*, like a raised beach in appearance. Here the enormous accumulation of mountain ruins, brought down by glaciers and torrents, and dumped into the basin of Los Andes, was impressively visible. Great glaciers must once have descended thus far. The sun poured a blistering heat on everything, and

bathed the landscape in gorgeous brilliancy. It was a cloudless and windless day, and every torrent from the hills was brim full with melted snows. The valley narrowed; the railway clung to its steep side, winding up in serpentine curves. Flowers on the bank looked in at the windows and were gone, a beautiful white cactus blossom being particularly attractive. An apparently unbroken line of snowy mountains seemed to bar the way ahead. The valley grew wilder, the enclosing hills loftier. The scenery resembled that of the St. Gotthard, near Airolo.

Passing through a narrow cleft of the rocks, we entered the terminus station at the place called Salto del Soldado (1,262 metres). It was 2 p.m., and we had come from Valparaiso in some six hours and a half. While the baggage was being dealt with I went to "The Soldier's Leap," and concluded that he must have been a good jumper, even if winged by terror; but I forget what story is told about him.

Various coaches were ready to carry us on. Each was drawn by four horses, harnessed abreast like an ancient quadriga. I secured a seat on the box beside the coachman, who was an excellent, if somewhat casual, whip. The road kept close to the torrent; it had been broken in several places, and was being quickly repaired by gangs of workmen. Avalanches of rock and snow had fallen upon it, and many single rocks, which had to be



removed by blasting. Stones were still falling from time to time, started by the melting snow, so that the drive was not without its elements of excitement. Three leagues from the station we were abruptly halted by a great mass of rock planted in the middle of the way. The coaches could not pass it on either side, so that the passengers had to descend and await developments.

So good was the organisation, that a number of saddle mules seemed almost to spring from the ground. Each man chose his beast, mounted it, and rode away—a caravan as motley as the Canterbury Pilgrims. The beasts were big and little, and the saddles of all makes and sizes. Several of the passengers had never been astride a four-legged animal. I was lucky in my mount—an eager mule that forged ahead. In the course of half an hour I captured no less than two runaways that had shed their human burdens. Leading one of them back to its temporary master, I found him in sorry plight indeed, with his breeches torn, hat battered in, face cut open, and clothes covered with mud. He took the misadventure with perfect resignation, explaining that when he started he had little hope of reaching the other side of the mountain without hurt, for everyone knew that crossing the Andes was a most perilous undertaking, which he, for his part, would not have ventured upon save under compulsion. Kismet! Though the point of view struck me as

novel, yet when I had seen the behaviour of my fellow travellers during this day and the next I was obliged to admit that, town-dwelling folk being what they are, the words "safe" and "dangerous," "easy" and "difficult," have only a relative connotation. Mountain climbers laugh at the exaggerated language, as it seems to them, in which the ordinary Swiss guide-books refer to the difficulty of easy snow ascents; but Baedeker's editors no doubt understand the persons for whom they write, and are wise to err, if at all, on the safe side.

This part of the valley resembles the well-known Visp Thal in the neighbourhood of San Niklaus, but the rocks are more richly coloured. Splendid buttresses protruded on either hand, reaching down from hidden summits behind. Countless waterfalls flung themselves over the horizontally banded strata. The slopes, if not covered, were, at all events, plenteously dotted over with vegetation. We rose steadily toward the lower edge of the winter snow, and at last we had glimpses, up two side valleys, of small glaciers and of a truly snow-clad peak. The signs of ancient glaciation were visible all around. The weather remained superb, cloudless and windless. The sun was nearly setting when we approached a group of corrugated iron sheds called Juncal (2,222 metres), where the night was to be passed.

At this point the valley branches. The main tributary stretches on southward for many miles to

the base of Tupungato ; the route to the Cumbre turns to the left up the other branch. In the dark shadows of evening the situation seemed wild and bare enough—sheets and patches of winter snow lay about beneath the beetling crags ; the muddy torrents roared and chafed in their haste to quit the upland wilderness ; the air was frosty, and the drivers and riders, beating themselves for warmth, shouted at one another and howled at their beasts. Nature's solitudes could hardly have been less sympathetically invaded. Dismounting at the posada door, we drove our beasts together into the adjacent corral, and entered a draughty saloon with a glaringly garnished bar at the far end.

The travellers, crowding in, shed their mufflers, cloaks, and coats, and piled them in a great heap on one of the tables. The luggage was built into a tower upon the floor ; we precipitated ourselves upon it, tumbling over portmanteaus and trunks to capture what we needed for the night. When the confusion was at its height a meal was served. Behind the saloon were a number of separate rooms or sheds, built of match-boarding and corrugated iron, and reached through an open court. They formed the kitchen and bedrooms. Each bedroom was occupied by as many beds as it could hold, separated from one another by passages about six inches wide. The travellers were accommodated promiscuously. Voices could be plainly heard from one room to another, so that when all had

gone to bed a general conversation was maintained in loud tones between the different members of a party scattered about; one or two children squalled, and their mothers shouted at them and beat them to make them quiet. When some of the men began to snore the pandemonium was complete. The mules and arrieros in the adjacent corral added to the din, and there was always somebody coming and going, stumping about in the saloon or visiting the kitchen, to prevent stagnation. It was an entirely lively night.

We were roused to breakfast about 1.30 a.m., and the caravan was actually away by half-past three. The stars were shining brilliantly, and the roaring of the torrent grew faint in the distance as we rode up the mouth of the side valley. The air seemed almost warm. In long single file we tracked up the well-laid zigzags of the carriage road, a string of forty mules and horses. The steep ascent gave access to a gentler slope some 1,000 feet up, where the winter snow lay deep and the highway vanished beneath it; but the frost bound it firmly together, and we rode along the trodden track in a narrow groove between white walls, where the frost crystals glittered in the dawn. Passing an abandoned mine, we quitted altogether the direction of the carriage road and climbed a *débris* slope, too steep or too unstable for snow to lie upon. The stones gave way beneath the horses' feet, and once or twice an

animal fell. There was a horizontal traverse at the top, causing giddiness and terror in several of the party. By it we arrived on rounded glaciated rocks emerging from the field of snow at the edge of a large basin high in the hills. The basin was anciently filled by the *nivé* of a great glacier, which discharged itself in an icefall down to Juncal, over the slopes up which we had come. Near the edge of the basin stand the strongly built stone huts of a posada, named Portillo, to which, after a few more days' labour, the carriage road was to be opened.

From the point to which we had mounted we looked down over the posada and far into the almost level valley behind it. It was a beautiful view. The morning sun shone bright and clear on the wintry landscape; all the valley was white, speckled here and there with rocks peeping through, and enclosed by craggy peaks of rugged form, with hoary crests and faces bearded with icicles. A blue shadow was flung across the valley from side to side, and in the midst of it, frozen over and white, lay the flat surface of the Inca Lake. This valley leads directly to a pass over the watershed, situated a few miles north of the Cumbre, and named "The Smugglers' Pass," for obvious reasons. Almost every frontier pass in the world that is much travelled is flanked by smugglers' passes, somewhat higher and more difficult than the main depression followed by the



INCA LAKE.



CARAVAN ABOVE PORTILLO.

*To face p. 24.*



road. This trans-Andine smugglers' pass commands a much finer view than the Cumbre. From it Aconcagua is beheld in great splendour,\* and the traveller looks right down the valley of the Mendoza river almost as far as Vacas, and up the Cuevas Valley to its head.

As at Juncal we had quitted the main valley, so here at Portillo we left the tributary valley, and turned southward up a branch, into which we climbed by a zigzag track upon a steep slope. At the top of the slope the bed of the valley, again almost flat, stretched away under a deep carpet of winter snow. It was featureless and smooth, with even slopes stretching up on either hand from the level floor, all white and unbroken, like one of the bog valleys of Spitsbergen before the winter snow has melted away. The snow was no longer bound with frost, but soft on the surface, and growing ever softer in the advancing day, so that the faster one went the better it was alike for beast and man. Gangs of workmen were engaged in digging out the road. They had made sections of a trench at least twenty feet deep in many places, but these trenches were not yet joined together one to another; they were mere disconnected wall-sided pits, inaccessible to horses. We had to flounder along the surface of the snow as best we could. In many places the snow was saturated with water, forming a snow-bog, such as I had

\* See Frontispiece.



floundered through many a time in Spitsbergen—a mushy compound that affords no support, yet grips while it saturates the leg that treads into it. My mule floundered so frightfully that I jumped off and left him to his own devices, whilst picking my own way on foot across the drier slopes. It was a pitiful sight to see the caravan struggling through this dreadful area ; most of the travellers were thrown off, some several times in succession. Those who wandered afoot went blindly into the snow-bog, through ignorance and inability to recognise the different qualities of snow. They became wringing wet in the ice-cold water, and gave utterance to their misery in loud cries.

Where the slopes steepened beyond this flat the snow became dry and harder once more. I hurried on to take advantage of its good condition before the sun weakened it. Only a long slope, covered with snow and deeply scored with a mule track, intervened between this point and the Cumbre. By careful picking of the way I mounted this last slope rapidly, meeting long caravans of baggage mules coming in the opposite direction.

Evidently these animals were well acquainted with the pass in all states of weather. They selected their way with much intelligent deliberation, pace by pace, sniffing doubtful spots and treading gingerly when dissatisfied. Notwithstanding every equine and asinine precaution, misfortunes frequently overtook the beasts, and

there were generally three or four in sight under whose feet the snow had given way. Their floundering and rolling was then terrible to watch. Again and again I thought that some poor animal must break its back in the struggle. It continually happened that the arrieros had to unload, and sometimes even dig a mule out, before it could be freed. Less often the beast, by rolling over on one side, would free itself, or by a great rear and kick would scramble on to a harder surface. From moment to moment the snow was becoming sensibly softer. The half-hour's lead which I held at the foot of the final slope enabled me to reach the summit without much difficulty; but my fellow travellers were so hindered by the softened condition of the same snow slope, when they reached it, that it was all their animals could do to carry them up in two hours.

Till the first caravan of baggage arrived I had the Cumbre to myself. The day was still quite clear, and the sunshine brilliant. There is no remarkable view backward over the side up which we had come, nor on the other side is the view very extensive for a high mountain prospect. The splendid Torlosa peak standing right opposite, clad in the lacework and samite of serac and snow-slope, was almost too dazzlingly bright to look upon, but fine in form as the heart of a mountain lover can desire. The top of the Cumbre (4,000 metres) is a flat area, swept bare of snow by wintry

blasts. Bold blades of rock, like walls, stick out of the ground and afford excellent shelter. Passing out of Chile over the frontier into Argentina, a steep slope fell away at my feet to the Valley of the Rio Mendoza, which stretched up to the left (as the Cuevas Valley) and down to the right. Looking up it I could see how deeply the snow still lay upon the ground, the floor being of unbroken whiteness to the sharply defined margin of the torrent. If such were the condition of the neighbouring Horcones Valley, it would be no easy matter to force a caravan up it.

Sheltering in a cosy corner, out of the cool breeze and in the bright sunshine, I slept soundly for a couple of hours till the arrival of my travelling companions. Loud were the lamentations with which they saluted the summit, for mountain sickness was added to other troubles in the case of many, and those who had been unprovided with dark glasses were suffering from painful inflammation of the eyes. One or two alone paid any attention to the view. When they had identified Torlosa as Aconcagua, which in reality is hidden behind it, and had given one shuddering glance down the slope they were about to descend, the scenery interested them no more.

Leaving my mule to follow with the caravan, I went down on foot. The slope is a steep curtain of *débris*, small and loose, into which the foot sank so far that descent was almost a glissade. For



**CARAVAN ON THE CUMBRE;  
TORLOSA PEAK IN THE  
BACKGROUND.**

*To face p. 28.*



the animals there was a zigzag track ; but I noticed that the arrieros and the baggage mules went straight down, and I wondered that the loads did not topple the beasts head over heels. Here and there masses of rock protruded through the stones. They were not only weathered and split by the action of frost and snow, but scored and in places undercut by the rubbing of the sharp *débris* in its downward flow. The rocks were all volcanic, red and green in colour, and the *débris* of that sharp-edged, smooth-sided, brittle, semi-vitreous character which distinguishes the ruins of volcanic from most metamorphic or sedimentary rocks. A slope of volcanic *débris* is looser, and therefore more laborious to ascend, than any other *débris* slope. Its constituent parts average smaller, and there seems to be less friction between them.

Between running and sliding, I reached the valley bottom, more than 2,000 feet down, in a quarter of an hour. A few minutes' walk over the flat led to the dreary post-house and inn named "Las Cuevas," where another group of quadrigas awaited us. Snow here lay thick on the ground, and stretched unbroken up the slopes of Torlosa to its summit, with splendid ridges of splintered rock cutting through it and broadening out below into cliff-ended buttresses. The road had been dug out of the snow beds, leaving just room for a coach to pass, in a hollow deeper than its height, between two white walls. Skilful driving

was required to turn the sharp corners and take the steep descents without running into the sides of the cutting; but the beasts understood the problem as well as the driver, and by crowding closely up against one another they just managed to squeeze through. The first object that arrested my attention was the splendid ruin of an enormous mountain-fall from the flank of Torlosa. The scar it left was visible high aloft, and one could see how the mighty mass, breaking up in its descent, poured almost like a fluid\* across the valley bottom, and mounted some way up the opposite slope before coming to rest. The road wound about among the huge masses of rock like some street in a ruined city of giants.

A characteristic of this valley, as of all the neighbourhood of Aconcagua, is the rich and varied colouring of the rocks. The *débris* fallen below one of the banded polychrome cliffs is variously coloured by the mixture of the constituent rocks in different proportions. Where at any point one particular rock supplies most of the *débris*, there will be a streak below of that special colour. Rich purple slopes streaked with yellow and other such combinations astonish the eye. The green of sprouting vegetation, sprinkled about below, added another brilliant tint to the chord of bright colour. The streams and waterfalls that traverse the *débris* slopes are correspondingly

\* See the chapter on Mountain Falls in my "Alps from End to End."

stained ; where they flood the snow they stain it also. Thus the main branch of the Rio Mendoza above Cuevas was pink ; though lower down, after receiving other tributaries, it became the usual muddy brown.

At one or two points the road made a rapid descent, with a steep slope on one hand, and a precipice on the other dropping to the flooded torrent. The horses were fresh and excited, and the driver could not hold them, so that my hair stood on end as we dashed along. "Why don't you have a break on these coaches?" I asked. "Break, indeed!" he replied. "What for? What use would it be? If you are smashed, you're smashed, and there's the end!" Oriental fatalism, I reflected; handed on, like the Oriental saddle, by the Moors to the Spaniards, and by Spain to South America.

"How far is it to the Baths of Inca?" I asked. "Thirty-two," replied our grumpy Jehu. "Thirty-two what?" I said; "leagues, or kilometres, or miles?" "I don't know," he said; "kilometres or leagues—what does it matter?" When I asked him about Aconcagua he only laughed in an incredulous kind of fashion, as though doubtful of its existence.

In less than an hour's drive along the left bank of the river we came to the mouth of a great side valley, where enormous mounds demonstrated the former activities of some great ancient glacier.



The terminal moraine left by it has been much modified in surface form during the passage of time, but the glacial origin of the mounds was instantly apparent. As we drove by my attention was attracted more by the mounds than by the valley behind them. Looking up, I suddenly saw the shining crest of Aconcagua clear cut against the blue sky, and realised that this was the Horcones Valley, and that our journey was almost at an end.

The mountain looked very white and splendid, but far from easy of ascent, for its precipitous south face was turned towards us, and no sign of the easy north-western slope could be perceived. A climber beholding the mountain for the first time from this side would hardly be likely to choose the Horcones Valley for his first attempt; but I had the advantage of following a party who had made the preliminary explorations, discovered the right line of ascent, and accomplished it, so that none of the doubts of an explorer passed through my mind, but only the great question whether I should succeed in accomplishing an ascent within very brief limits of time. Regarding the peak with a mere climber's eye, as one looks on any ordinary Alpine mountain to judge of its condition and reckon whether the time is propitious for an ascent, I could not fail to observe that it was in a very snowy state, like that of the Alps early in June. "There is Aconcagua," I said to my guides.

“What do you think of it?” “It looks difficult,” they said, “and in very bad condition.” “If we get up it in a month we shall do well,” said Maquignaz. “If we don’t get up in a fortnight,” I replied, “we shall not climb it at all; we haven’t a month to spare.” “Well, we will do what we can,” they said; “that’s all anyone can promise.”

On approaching the end of the moraines we were opposite a group of buildings on the other side of the valley, which I immediately identified as the hotel and establishment of the Baths of Inca. The river here flows in a narrow gorge, cut through the moraines and fallen *débris* that fill the bottom of the valley right across to a considerable depth. Hot springs of natural water ooze out at different points in a small area beside the gorge, and the *débris* has been compacted by their agency into a hard rocky mass. Apparently mud avalanches have poured down at various times over the hot springs, whose waters have presently permeated and cemented them together. Thus by degrees a conglomerate bridge—a great natural rocky arch—has been built across the gorge; or the layer of conglomerate has been dug under and dissolved away below by the torrent of fresh water, which has thus fashioned the bridge by excavation. Over this bridge passes the road to the hotel. Bridge and hot springs together form a striking phenomenon; the mineral waters stain the conglomerate white, yellow, and bright orange, in

streaks, like beds of curious moss, which attract the eye from a considerable distance.

We reached the hotel before noon, in seven and a half hours from Juncal, and were kindly received by the proprietor, Dr. E. J. Cotton, and the manager, Mr. G. H. Darby. The altitude of the hotel above sea level is 2,780 metres. While awaiting the baggage, I was led along a narrow path straight over the edge of the gorge's cliff, and then for a few yards along the face. Access was thus obtained to a series of little natural caves, now closed by wooden doors. These are the baths. Some carpentry has been done for convenience sake, but practically the baths themselves are almost as Nature made them—rocky cups in the floors of little caves. Walls and roofs are all encrusted over with mineral deposits, brilliantly coloured orange, yellow, red, and brown, a most beautiful natural decoration. The water flows through steaming hot, but of different degrees of temperature in the different caves ; it also trickles over the path and stains the face of the cliff. A cloud of steam drifts about, and the icy torrent roars below. The last of the baths is situated almost under the natural bridge, and all of them are most romantically placed, the hotel and buildings being entirely hidden from view. Nothing is in sight but the weirdly coloured rocks, the wild waters, and the pungent steam. The baths are said to be most efficacious for gouty and

rheumatic complaints. The combination of pure air, simple living, and medicinal waters may well produce the wonderful cures recorded at this establishment.

The name Inca seems to have been attached to these baths before the coming of the Spaniards. No improbability is involved in attributing to them a high antiquity and a wide pre-Colombian reputation. Dr. Moreno informs me that recent geographical investigations, conducted on behalf of the Argentine Government, have revealed the fact that the Uspallata Valley, which joins the Mendoza Valley some way below Vacas, is the south end of a long continuous depression running through no less than eighteen degrees of latitude. This depression, interrupted here and there by unimportant passes, rises gradually from the south, becomes the Puna of Atacama, continues as the high Bolivian plateau—including the Lake of Titicaca—and stretches on further to the north to the point where the Cordillera Real joins the main Cordillera of the Andes. Right along it there ran in the days of the Inca dominion, and doubtless for many centuries before, the main north and south route of continental traffic, whereby Cuzco, the capital of the Inca Empire, was kept in communication with the southern lands. Numbers of old inscriptions and other marks of human frequentation are to be found along this line of route. Where the

Uspallata Valley debouches in the Mendoza Valley the long depression reaches its southern termination, and the road was compelled to be deflected to the western side of the watershed. Accordingly it turned up the Mendoza Valley, crossed the Cordillera by the Cumbre—which thus derived the name Uspallata Cumbre, *i.e.* crest of the Uspallata route—and so gained the fertile valley of Chile, and continued down that to the southernmost regions of human habitation.

South of the Rio Mendoza the long depression does not continue on the east side of the main chain, but the great Chilean Valley on the western side begins almost where the other leaves off. The high mountain mass, culminating in Aconcagua, lies between the south end of the one and the north end of the other, possibly owing its existence to the same telluric forces that determined them. In western South America there can be no other line of north and south communication than this. It was traversed, and the Cumbre Pass must therefore have been known and frequented, from the most ancient times. Thus the curious natural arch and the neighbouring hot springs, with their strange and brilliant colouring, may well have had a reputation extending back far beyond the times of the Incas; whilst Aconcagua, instead of being a mere lump of the earth, interesting merely from its size and for modern scientific reasons, is of hoary antiquity in its relation to man, and may have looked

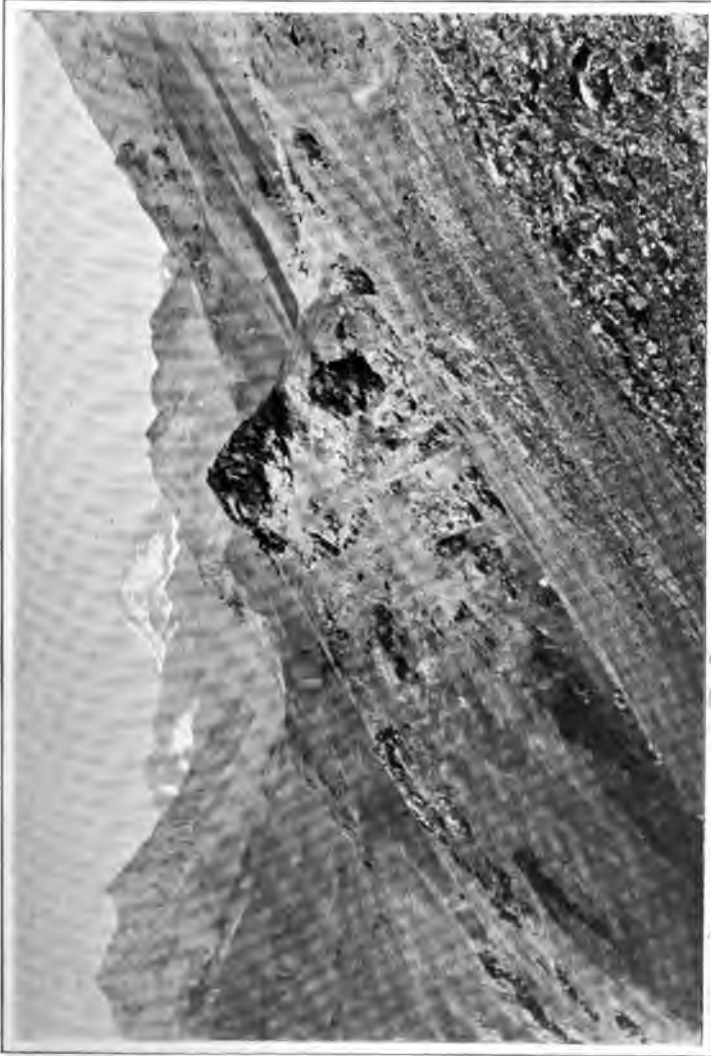
down upon the great trade route and its passing caravans perhaps even before the Pyramids of Egypt began their watch of centuries upon the Pharaohs, the Napoleons, and the Kitcheners who have trodden the banks of the Nile.

The rival baths of Chillan, about 100 miles south of Santiago, divide with these of Inca a reputation for remarkable efficacy. Inca is more easily accessible from Argentina, Chillan from Chile. For both a prosperous future may be predicted when sufficient capital has been invested in buildings suitable for the accommodation of invalids, and in the development of other facilities. Dr. Cotton is energetically working at Inca, and each year witnesses some improvement. The very simple posada which, two years before, was the starting point of FitzGerald's expedition was being supplemented at the time of my arrival by a substantial stone house.

Of course, we immediately fell a-talking about the FitzGerald expedition, and I was shown the neighbouring site of the encampment at the mouth of the Horcones Valley, where the Swiss porters had lived, and where a plentiful crop of old tins was still lying about. Straight up behind the Baths stands a rocky peak, on whose summit I distinguished the stone man. "That was Vines's training ground," said Dr. Cotton. "He used to run up to it and down again in an extraordinarily short time once, and often twice, every day, and

so he kept himself always in first-rate condition. Such energy excited the wonder of people hereabouts, who can't understand a man doing anything he is not obliged to do. When the expedition arrived here first of all they couldn't believe that FitzGerald had merely come to climb a mountain. Such a notion was incredible to them, and it was hard to find men to go as porters. But he was here so long, and he spent so much money, that everybody's attention was called to his doings and those of his companions; so gradually they all came to know about Aconcagua, and they read about it in the local newspapers, and the men who were employed had so many stories to tell that they became quite well known in the neighbourhood; so that now you will have no trouble at all in getting men. Ever since the news came that you were going to try Aconcagua I have been pestered by all sorts of men wanting to go with you. All the peons here want to go, though they have no proper clothes or boots, or anything; but they don't mind so long as they can be taken somewhere near the mountain of which they have heard so much."

This was good news, for the question of portage is always a mountain traveller's most difficult problem in out-of-the-way places. "What arrangements have you been able to make for me?" I inquired. "I have found for you a first-rate arriero," he replied; "a certain Anacleto



ACONCAGUA FROM THE NORTH.

To face p 34.





Olavarria, who was up the Horcones Valley more than once for FitzGerald; and I have arranged with a contractor down at Vacas, the place a few miles below here where the Mendoza Railway begins, to supply you with as many mules as you are likely to want, with saddles and everything complete; whilst all you have to do is to pick such porters as you require from among the men waiting about in hopes that you will take them. Tell me how many mules to order; we will at once telegraph for them, and they will be up here this evening." "Telegraph?" I asked. "Where is the telegraph wire?" "It runs underground as a cable," he answered, "and goes from Vacas past this house to Juncal in that fashion. Here and there you must have seen it, carried on posts, as you came over; but, of course, where it is liable to be overwhelmed by avalanches the only thing to do is to bury it. Even then it often gets smashed by the weight of fallen rocks or a sudden change in the course of a stream. They have recently laid down a new cable, and here are coils of the old one, which I am going to use for wire-fencing. There is no proper telegraph station here at Inca, but the cable comes through the corner of my house, and I have given the company the right to use it as a testing station. As they thought you might want to send telegrams, a man has come up, and is waiting here now to do what he can for you."

After lunch, we again wandered forth, but the

gale of wind which arises every afternoon in this valley was blowing so violently that I was not tempted to go far. I inquired of Dr. Cotton about the character of the season and the state of the snow. "It is the snowiest year I have ever seen here," he said. "Look at that mountain there at the end of the valley, covered with snow from top to bottom. It is now the 2nd of December. At the beginning of November in ordinary years hardly any snow is left upon it. You will notice, too, that there are patches of snow lying level with this house on the opposite side of the valley. Generally speaking, that is no longer the case after the beginning of October, a proof of the unusual character of the present season. I should think that for an ascent of Aconcagua the conditions must be very unfavourable."

As the afternoon advanced splendid white clouds, bulging up in hot-air currents in the Mendoza direction, were seen to the eastward. Fine as they might be to look at, I was far from saluting their appearance with joy, for it seemed to prelude the termination of the spell of fine weather that had lasted ever since I set foot in Valparaiso. All mountain areas are infested with variable weather, stormy days predominating. This is particularly the case with the Aconcagua region, where fine spells are short and storms frequent and violent. But about five o'clock all the clouds melted away, the wind dropped, and a perfect

evening came on. Mellow lights played upon the many tinted hills, enforcing their brilliancy of colour and presently flooding them with the golden radiance of a matchless sunset.

A few stragglers of the big Valparaiso party and one or two visitors from the east spent the night at the hotel. At dinner-time I thought that Darby, the manager, sitting opposite to me, had suddenly gone off his head. We had been talking about England and English schools. Darby was in the middle of saying something, when he stopped dead, leant over and pointed at me, staring with eyes and mouth wide open. After a long pause, he remarked with slow deliberation: "Conway? Conway! Conway!! Why, you and I were at school together; we sat next to one another in the sixth form. Think of our meeting out here, after all these years!" Then it was my turn to open my eyes and stare. As I looked the veil of time seemed slowly to melt away, carrying beard and moustaches along with it, and I beheld the boy of long ago as though we had only parted yesterday.

## CHAPTER II.

### THE HORCONES VALLEY.

**A**CONCAGUA is 23,100 feet in altitude above the level of the sea, according to FitzGerald's measurement. It is therefore in all probability the highest peak in the two Americas. The highest peak in North America is Orizaba (18,314 feet) in Mexico, unless hereafter Mount McKinley or some other peak in Alaska should prove to be more lofty.

In South America extraordinarily exaggerated altitudes have been ascribed to Sorata and other points in the Bolivian Andes, misunderstanding having been caused by setting down their measurements in Spanish feet, and comparing them without reduction with the measurements in English feet of the great Asiatic mountains. I have proved by careful triangulation that none of the Bolivian peaks are as much as 22,000 feet high. At present, therefore, Aconcagua is the highest measured peak in the Andes. It is possible that the great Coropuna peak, in Peru, may be equal, or even superior, in altitude to Aconcagua, but it has not been measured. We only know that mountains of 20,000 feet, fifty miles further south, and therefore further from the equator, are clear of

snow in summer, when Coropuna can still be seen raising its immense calotte of snow and glacier apparently 3,000 feet or more above the snow-line.

The athletic peoples now growing up in Chile and Argentina, men equal in physique, activity, and sporting instincts to any in the Old World, may be expected in due time to produce mountain-climbing enthusiasts who will regard a scramble up Aconcagua as the blue-ribbon of their sport. It is, in fact, the one very high mountain whose ascent, for a variety of reasons, is likely to be often repeated. It was climbed for the first time, as everyone knows, on the 14th of January, 1897, by my old Himalayan guide, Mattias Zurbriggen, in the service of Mr. E. A. FitzGerald. A few weeks later it was climbed again by Mr. Stuart Vines and the guide Lanti, likewise members of the same expedition. These two ascents were practically one and the same, for they were made from the same set of camps and as the result of a single organisation. The record of the whole expedition has been published by the leader of the party.\* The book in question does not describe what may be called an ordinary ascent of Aconcagua, straight up from Inca to the top, such as the average mountaineer will hereafter desire to make. For a multitude of reasons, the FitzGerald party approached the mountain in an exceptional

\* E. A. FitzGerald : "The Highest Andes," London, 1899, 8vo.

manner. They were half helped, half hindered, by an elaborate equipment, which enabled them, indeed, to establish, furnish, and supply a number of camps, many of which were fitted up almost as places of residence as well as scientific observatories. Simple mountaineers might be led to imagine that without such equipment and great latitude of time an ascent could not be made. I therefore desired to make a mere sporting ascent, unencumbered by instruments of any sort, in as quick a time as possible from Valparaiso and back, hoping thereby not merely to enjoy a stimulating experience, but to incite Chilean and Argentine mountaineers to follow my example.

During the days of rapid snow melting the torrent of the Horcones Valley, which has to be forded twice, was likely to be impassable after the heat of the day had come. An early start from Inca was thus imperative. Mules and porters were ordered to be ready by four in the morning of December 3rd, thus providing the necessary margin of a couple of hours, without which nothing can be done in South America. All being ready, I cast a final glance over mules and men, and was delighted with their evident strength and spirit. Three pack-mules carried our baggage, containing the whole equipment and all the provisions that were actually used on the ascent. For the sake of future travellers I may briefly mention the principal articles taken.

There were five tents. One of them was a full-sized Whymper tent of stout Willesden canvas, with an extra fly of the same material, which both adds to its warmth in cold weather and to its coolness under a hot sun, as well as greatly increasing its stability in a gale of wind. This tent is made to open at both ends, so that a draught of air may pass through it when used in hot countries. I have since thought that a round end or apse of canvas might be made to fasten on to the fly, and form a bath-room, kitchen, or baggage-shelter without greatly adding to the weight. This tent is relatively heavy, and only suited for mule transport; it forms about half a load. I intended it to be my base camp. Two other tents were of the Mummery form, but about a foot larger in height and width; they were also made of Willesden canvas, with a floor of the same sewn in. They were warm, waterproof tents, specially constructed for use on the glaciers in the cold, damp climate of Spitsbergen. Finally, there were two or three ordinary Mummery tents, made of light Willesden drill and only partially waterproof. In height they were equal to the ice axes which serve for their poles. We carried three reindeer-skin Arctic sleeping bags, of Norwegian manufacture; in these we slept warm at the highest camp. Mr. FitzGerald relates in his book that at his highest camp no number of blankets and eiderdown sleeping bags availed to keep his party in comfort



during cold and stormy nights. The superiority of the fur sleeping bags is thus proved. It is true they weigh ten pounds apiece, but this is less than the weight of a far less efficient bedding of blankets and mattress. The porters, who were to sleep at the base camp, brought their own wraps, and used the sheepskins of the saddles as bedding. Of our clothing I shall have occasion to speak later on.

After trying various kinds of spirit and petroleum cooking apparatus, I find that petroleum is far better than spirit. For some reason pure alcohol is not an efficient heat-producer at a high level. FitzGerald relates at length the difficulties he experienced with his alcohol stoves. At his top camp he found it impossible to boil water with them, and was constrained to feed upon half-cooked meat,<sup>1</sup> congealed fat, and tepid drinks. In consequence he and his companions became so reduced in strength as to be compelled to relinquish their first serious attempt on Aconcagua, and thus to lose a week or two of the best climbing season. He was obliged, therefore, to organise an elaborate system of transport, whereby firewood was carried in large quantities to his top camp, an arrangement only possible because he had in his employ half a dozen skilful Alpine guides and porters. I used the excellent Norwegian pattern petroleum stove of the kind called "Primus," the same that was used by the Duke of the Abruzzi on his Mount St. Elias expedition in 1897. My guide Maquignaz

was with him on that journey, and there learnt to manipulate the stove, a matter requiring some little practice, the chief trouble being to light it in a gale of wind. Our stove never failed us at any altitude or under any conditions of weather during the seven months of my travels in different parts of the Andes. I carried duplicates of all important parts, but never had occasion to use them.

For food at the base camp we were well supplied with fresh meat, bread, and other ordinary supplies, which the Inca Hotel yielded as required. It would have been easy to keep the base camp victualled during the whole summer season by a single mule and man travelling up and down between it and the inn. At higher levels only light foods can be eaten with advantage, for one of the first effects of diminished atmospheric pressure is to quench the appetite and impair the digestion. We only carried some concentrated soups, tea, chocolate, condensed milk, and a few boxes of biscuits. More important, perhaps, than all these was a great tin of coarse brown Demerara sugar, the finest heat-producing, muscle-nourishing food in the world. For men taking violent exercise, such as soldiers on active service or athletes in training, a plentiful supply of sugar is far better than large meat rations. A quarter of a pound per man per day is my allowance on the mountain side, and I am inclined to think it might be increased to nearly half a pound with advantage,

cane sugar being, of course, selected for the purpose.

I carried no surveying equipment, for the survey work had been done. My only camera was Shew's excellent  $\frac{1}{4}$ -plate "Xit," with a Zeiss lens and a Shew-graph changing box, capable of carrying six dozen cut films. I was supplied with films of different makes, but far the best were the slow films manufactured by Fitch. A prismatic compass and a pair of Zeiss' fieldglasses were my only other instruments. We had some German *rucksacks* for carrying on the mountain side, and we were, of course, provided with the ordinary mountain equipment of ice-axe and rope.

Having sent the men forward, I awaited Dr. Cotton, who proposed to accompany me as far as the first ford, so that the caravan had a start of about a mile. My mule was the best ever bestridden, clever, sure-footed, and well broken. He was almost white, and was adorned with a saddle covered with a new fleecy white lambskin. Trotting across the bridge and along the road, we soon turned up a steep little track, and came among the sandy mounds of the old moraines at the mouth of the Horcones Valley. The tracks of the caravan were easily followed, as we cantered in and out and up and down the dune-like area, with the Horcones torrent some distance away at our right. When the undulations became smaller, and the soil more stony, we hit upon a well-marked trail, and soon

came to large hard beds of slippery winter snow, which had to be carefully negotiated. Aconcagua was visible ahead, and the view of it, framed between many-coloured rocky hills, was particularly striking from the point where we overtook the caravan at the edge of the Horcones tarn. Among the sand-hills and along this first part of the valley there were multitudes of little doves, whose piping note was inwoven with the hum of the hidden torrent.

After a brief halt to take a photograph, we rode swiftly on towards the ford, for there was no time to lose on so bright and warm a morning. The turbid torrent was already coming down in a spate, whilst the high-water mark of the previous day showed how much higher its waters would presently rise. Anacleto, arriving first at the ford, plunged in and with some difficulty got across. He was followed by another peon, whom I arrived in time to see completely swept away and submerged, mule and man together. They only just escaped destruction by struggling ashore a yard above a six-foot waterfall. Determined to avoid an untoward accident, and mindful of Zurbriggen's narrow escape and of the great risks other members of the former party ran at this spot, I caused a rope to be thrown across the stream and held by two men on the further side. Attaching this rope to the head of each mule as his turn came to cross, the remainder were piloted over, for it was thus

easy to hold their heads up stream and to drag them ashore when swept away. Even so, the experience was exciting enough, for the waters were rushing by at great speed, and boulders of all sizes in the bed of the torrent gave anything but a good foothold.

The position of the ford is just above the opening of the first tributary valley from the east, and the hour was now 7.30 a.m. From the high-water mark we judged that on the previous day the ford would have been impassable.

We wrung the water from our clothes, waved adieu to Dr. Cotton, and proceeded up the left bank. For some distance the way was easy, across *débris* slopes, where in spring time avalanches fall from above. We looked down upon their compacted ruin, firmly bridging the torrent with a snowy tunnel. But presently came fallen avalanches of larger size, that not merely reached the torrent, but lay at a steep angle upon the slope. The surface of these snow-slopes was hard, but the mules crossed them without hesitation, striking the sharp edges of their shoes into the snow, with never more than half a hoof supported. One of these avalanches opened out into a great half-cone, or fan; its wide surface, instead of being smooth, was pitted over with hollows or dotted with little mounds (whichever way you like to describe it). I immediately recognised a rudimentary form of the *Nieves penitentes*, for which the Aconcagua



A STEEP SLOPE OF SCREES  
IN THE HORCONES VALLEY.



FORDING THE HORCONES  
TORRENT.

*To face p. 50.*



region is famous. I shall hereafter have occasion to describe this phenomenon at length. Further on came an avalanche steeper than all the rest, and of equally hard surface. I was at this time riding behind with the guides, and we were all astonished and horrified to see the bell-pony, the authoritative leader of a caravan of mules, and after her the pack animals, walk calmly across it, though the slightest slip must have landed them, without hope of salvation, in the raging torrent a couple of hundred feet below.

“Well,” said Maquignaz, “I never saw anything like that in my life. When I go home and say that I have seen a mule walk across a snow-slope like that, there is not a man in our valley that will believe me. That’s the worst of travelling: when you come home and tell about what you have seen everyone thinks you are lying. When I came back from Alaska last year and described the great Malaspina Glacier, saying that we had slept forty nights running upon ice, they used to laugh. I could see that they thought I was ‘pulling their leg.’”

We dismounted, and examined this slope carefully. We found that for crossing it on foot steps had to be cut, unless we utilised the tracks of the mules, which came to the same thing. The snow was too hard to tread into, and the slope too steep to tread upon. “Now, Maquignaz,” I said, “just think over the well-known snow-slopes in your



mountains, and name one that seems to be of the same steepness as this." He named the final slope of the Zermatt Breithorn, which was the one I also had thought of, and Pellissier agreed with the exactitude of the comparison.

I then mounted my mule, and rode after the others, with my heart in my throat and my confidence oozing out of the heels of my boots as we came to the middle. Thus far the mule kept in the tracks of the others. The further I went the steeper seemed the slope and the more violent the raging waters, which had cut away the bottom of the snow into an overhanging cornice. Half a dozen times I thought of dismounting, but concluded to go ahead. The rocks beyond were coming nearer; at last they were but two yards away. Just here the mule began to slip, and I thought we were lost. With a great struggle she heaved herself forward, broke through the edge of the snow with her fore-feet, and so scrambled on to the rocks.

All day long the route kept presenting new difficulties, great and small. The behaviour of the mules as they overcame the various problems of the way was an amusing spectacle. Wherever the little unladen bell-pony led, they followed. I make no apology, except to the author, for quoting the following appreciation of the mule, written by a master \* :—

\* R. B. Townshend : *Nineteenth Century*, January, 1900.

“The mule is always a child. There never was on the face of the earth a more incurably infantile creature. He may not be aware that his father was a donkey, but he never can forget that his mother was a mare, nor does he want ever to be free from her leading-strings. The one desire of his soul after he is weaned is to find his mother again, and, failing her, his maternal aunt; he will cling to her side, if permitted, for his whole life long, and his heartbroken wails when he is separated from her would split the ears and raise the pity of anyone but an arriero. But the mule is a philosopher too, so when he has not the company of the mare that he loves, he consoles himself with loving the mare he has; he can always be induced to adopt a new aunt. It is on this unrequited passion of the mule (for the mare does not seem to care so much about these adopted nephews of hers) that the wily arriero trades. He makes one ‘madrina’ or ‘campanera,’ as he calls the bell-mare, serve as the link that unites forty or fifty mules that compose the pack-train. Whenever he gets a new mule he ‘necks him up’ with a short rope alongside of the mare for two or three days, and after that the new mule becomes as devoted a slave to his new aunt as the rest of the train.

“The bell-mare is chosen for her general steadiness of demeanour and for her colour; the arrieros all believe that mules love a grey mare best, but perhaps the truer reason is that the light colour is more readily seen at night. The bell-mare has what may be called a ‘soft option,’ for she never does a stroke of work beyond carrying a little tinkling bell strapped round her neck, and she daily enjoys the privilege of being led in front of the train. She has, in short, the honour of being the pivot on which the whole management of the pack-train turns. The mules are not led separately; it would be an absurd extravagance to go to the expense of an arriero for each mule when half a dozen skilful hands can do all the needful work of loading and unloading an entire train of forty or fifty pack animals, whose touching devotion to their *madrina* is better than forty arrieros. They follow in her tracks obediently along the trail, and when they reach

camp, and the bell-mare is hobbled and turned loose to graze, there the whole herd of mules remain with her, resting or feeding in perfect freedom, and restrained only by the invisible chain of sentiment which binds them all to her. This sentiment of theirs is telling enough; so long as the bell-mare is there, the mules are as safe as if each was tied to a picket-pin with a raw-hide lariat."

A short way beyond the steep avalanche came a great accumulation of moraines at the mouth of the side valley which cuts back between Almacenes and Aconcagua, draining the southern glacier of the great mountain. The river has excavated a deep gorge through these moraines, and the upper ford is in this gorge. The descent to it led along the crest and finally down the very steep face of this gorge by a most rotten slope of small *débris* of volcanic rock, into which the mules sank deeply. On the return I photographed the bell-pony climbing this slope, which was more laborious, though less exciting, to ride up than down. One hour and ten minutes from the first ford we reached the second. This was narrower and deeper than the other, but we were able to drive the beasts across, and ourselves to attain the other bank by jumping down from a big boulder. The track now led steeply uphill in a kind of gully between the mountain of moraine and the hillside. There were a few bad places, as I noticed in the descent, but none so dangerous as some already passed. Having thus arrived on the top of the moraines, we again traversed an undulating area,

which gradually flattened out as we approached the edge where it merged into the upper valley.

From the upper surface of the moraine the glacial history of the Aconcagua region became apparent. At the time of glacial extension the entire Horcones Valley was filled to its mouth by a great river of ice, which deposited at its snout the moraines opposite the present Inca Hotel. This glacier was fed by two principal tributaries, one flowing directly down the main valley and draining its southern slopes and the whole cirque of mountains stretching round to Almacenes. The latter, or southern Aconcagua glacier, was probably at first a mere corrie-glacier occupying a hollow between Aconcagua and Almacenes. This glacier, by eating back, as all corrie-glaciers must do at their heads, transported the rapidly disintegrating mass of mountain, and thus scooped out the great southern cirque which it is still pushing backward. The ultimate and relatively rapid destruction of the peak is thus assured. The amount of *débris* already carried off is enormous; the great Inca moraines are only a small fraction of it. Friability is a characteristic of most volcanic rock; it breaks up rapidly into small fragments under the action of frost and pressure. These fragments again subdivide, so that in process of time an immense mass of fine *débris*, which may best be described as sand, is formed on the site of what was at first a moraine of volcanic rocks. The moraines at Inca and

others that we saw in the Horcones Valley are sandy in proportion to their age. The violent winds that blow in this neighbourhood drift the sand about, and form as efficient agents in carrying it away as the torrents themselves. They likewise heap the sand up into dunes, and thus generate a type of moraine such as I had not elsewhere seen.

In the first stage of glacier retrogression the Horcones Glacier withdrew to the neighbourhood of the second ford, where it seems to have halted for some time, dumping down the huge moraine we had just climbed. The western Aconcagua Glacier seems to have continued to descend as far as this point for a long period after the southern branch had withdrawn further; for the moraine of the older glacier dams the valley right across from side to side, and at one time may have formed a lake in the hollow from which the eastern glacier retreated. The nature of the rocky floor of the direct upper continuation of the Horcones Valley above this point of junction cannot now be discovered, for it is entirely buried under *débris* of unknown thickness. Such moraines as may have been left there have been buried beneath the *débris* falling from the hills on either side and the sand, which has blown over all the surface and smoothed its outlines. The upper Horcones river and all the tributary streams from side valleys are swallowed up in this porous deposit, and leak through it and beneath the great moraine upon which we were



FIG. I.

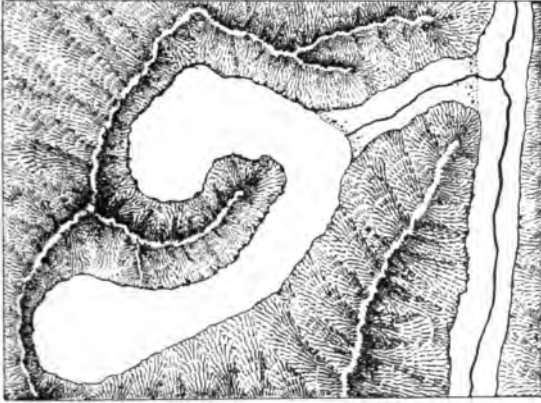


FIG. II.

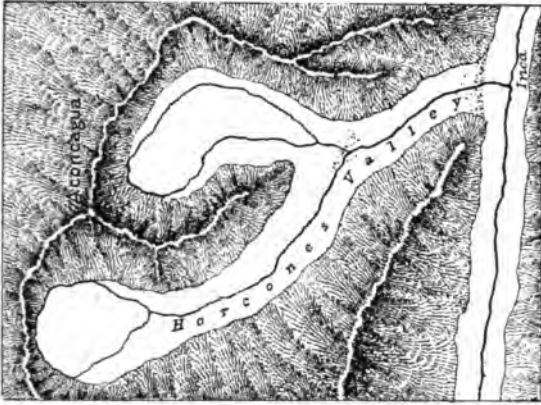


FIG. III.

THE ACONCAGUA GLACIERS  
AT DIFFERENT STAGES OF  
RETREAT.



standing into the more energetic torrent of the southern Aconcagua Glacier.

The view was very striking up this smooth valley, with its golden-toned floor walled in on either hand by purple, red, and bright green rocks, with slopes leading down from splintered peaks to the wide level basin tinted in all imaginable hues. Straight ahead rose a snowy mountain of boldest form. The skyline on either side was rugged and ruinous, like the shattered crest of a falling castle. The melting snows poured their waters down rock and *débris* slopes, which stained them with their own bright colours, so that in many places the hills seemed to be bleeding, and all the torrents flowed red as from a battlefield of giants. Half an hour above the second ford we quitted the great moraines, and rode up the level and easy surface of the unencumbered valley. Thus far we had been traversing a region that seemed fertile to our eyes, accustomed as they had long been to the deserts of Bolivia. There was plenty of grazing for cattle, and in a week or two, when the grass was grown, there would be much more. But from this point onwards the valley was a desert. It was only here and there, in some chink of a rock, that the withered remnants of last year's sparse vegetation were to be discerned.

It had been my expectation that we should find the valley floor at the relatively high level to which we had now attained (about 11,000 feet) covered



with snow, for the neighbouring and parallel Cuevas Valley was densely snow-clad down to a level 3,000 feet lower. I now observed that the western slopes of the Torlosa range, which divides the Horcones from the Cuevas Valley, were much more densely snow-clad than the eastern. The explanation of this fact is that the snow was precipitated from a moist atmospheric current drifting over Chile from the Pacific, the moisture being condensed by contact with the mountains. This conclusion was confirmed when we stood upon the crest of Aconcagua and could look abroad to east and west. The greater amount and lower level to which the snow descended on the Chile side was then apparent. By the time the damp western wind has passed over the Chilean watershed range it has parted with its moisture from the lower strata of the air. Though, no doubt, the stratum above 20,000 feet still sheds snow upon the top of Aconcagua, the area is too small and too wind-swept for any great accumulation to occur. What does collect soon falls in avalanches down the north-west face, at whose foot, and there only, did we find any considerable snow-beds.

Riding merrily along the easy valley floor, we made rapid advance; but the heat of the sun became oppressive, radiating down upon us as it did through the thin, unclouded air, and reflected from bright rocks and golden sand. With no halts, save for the occasional adjustment of a mule's

burden, we passed the side valleys one after another, enjoying the constant change of scene as the hollows in the hills revealed themselves in turn. In half an hour the leading mules halted under the shadow of a great rock planted all alone well out in the valley ; but we drove the beasts forward along the margin of the torrent, which no longer soaked into the ground. For convenience' sake we forded it once or twice without the least difficulty, and so came, an hour later, to another great rock standing solitary near the foot of an ancient moraine of white rocks, left behind by a western side glacier in its retreat. "Look," said Maquignaz, "here are old meat tins ; this must have been one of FitzGerald's camping places." There was fresh water near at hand, and I imagined the site to have been that of the camp called "Zurbriggen's" in FitzGerald's book. For still half an hour further the easy valley continued ; but then it narrowed, its floor was invaded by great cones or rock *débris* fallen from above, and the river flowed in a narrow gorge cut through them. The character of the march changed suddenly at this point, and here accordingly we halted at eleven o'clock to lunch at the foot of a third fallen monster rock. Black ashes of a wood fire remained in a little built-up shelter of stones, and two or three empty tins were lying about. A clearly marked track led round behind the rock, and indicated the route of our predecessors. The seats which Nature provided for

them at this point will not be worn out in several thousand years; the biscuits ministered to us by her provident and their careless hands had kept fresh for us during two years.

The remainder of the ride took an hour and a half. To my thinking it was the worst part of the whole. The track only lasted a little distance, and was succeeded by a chaos of *débris* fans, seamed by gullies eight or ten feet deep, with sides almost vertical, into and out of which it was often difficult to take the mules. There was little earth or sand among the *débris*, and the stones were mostly of large size, heaped on one another in utter confusion, so that the mules stumbled about perilously. Sometimes we had to go far up the hillside for a passage, at other times we had to coast the margin of the torrent's gorge. This rapid succession of ridges and gullies vividly recalled to my memory the much more numerous and exasperating series that scored the fans over which my caravan passed on its way to the foot of the Baltoro Glacier, six years before, in the Karakoram Himalayas.

Riding far ahead of the others in search of the best route, I came out on a less uneven area, and saw the foot of the terminal glacier about a mile away. Here a faint track again appeared. I followed it to a group of great fallen rocks, the split-up fractions of a giant mass, which must have been carried hither by the glacier before its final retreat. Mud-avalanche *débris* had since then

poured around and buried its base, so that the group had come to resemble the ruins of a great building. My mule sighted these rocks from afar, and made for them straight with such obvious intention that I concluded she recognised them from previous visits. When, of her own motion, she turned into a kind of natural stable, surrounded by the rocks on three sides and embellished with tins, there was no doubting. A good stream of fresh water was near by ; at the foot of one of the rocks was an old biscuit tin, carefully let into the ground. Its cover had been replaced by two or three thicknesses of the *Daily Chronicle*, tied on with a piece of string. A round hole had been cut in the paper. It was one of Philip Gosse's beetle-traps. The newspaper contained a report of the Parliamentary Committee on the Jameson Raid, which seemed irrelevant to the time and place and so vast a silence.

When the caravan came up the peons immediately began to unload the mules. "Are you sure," I said, "that this was where FitzGerald camped? It seems to me we might ride on further." "No," they said; "you can't, for the ground becomes very rough a little way on, and there is no place for tents, and no water." Maquignaz was very hostile to the idea of stopping. He said: "We shall lose a day by this, for look how far we must carry the baggage before we get on to the mountain. I am sure we could ride another kilo-

metre." "I think so, too," said I; "let us go ahead and see." We walked on and again found traces of a path, and so felt assured that the proper camping ground was further on. But on returning to fetch the mules we found that the men had carried them off, after unpacking the baggage, for they had to take them down the same evening to the neighbourhood of the second ford, where alone was there any grazing. It being now about 2 p.m. their eagerness to get away was not unpardonable.

The next day we found the well-marked traces of FitzGerald's camp, easily accessible for mules, about half a mile further on at the foot of the terminal moraine of the end glacier. The extra distance involved for portage was not a very important matter, and was compensated for, as far as I was concerned, by the admirable nature of the camping ground, the sheltering rocks, and the interesting view up the opposite side valley. The big tent and three small ones were soon pitched, the baggage was distributed, and dinner set on to cook. The brilliancy of the day was past: clouds were drifting over from the west; the air became cold. Before sunset the temperature had sunk to 40° Fahrenheit. After so long a spell of fine weather, storms might well be expected. But we were plentifully victualled, we had reached the base of the peak, and could await another spell of good luck, whilst carrying tents, provisions, and





**DIRT-COVERED NIEVES  
PENITENTES, IN THE  
HORCONES VALLEY.**



**ICE-TERRACES IN A BRANCH OF  
THE HORCONES VALLEY.**

*To face p. 63.*

the like to higher elevations and preparing for an ascent when the time should be ripe.

Next morning (December 4th) the sun again rose in a cloudless sky, and the fine weather seemed well established. At an early hour I sent off the guides with Anacleto and another peon, all well laden. They carried two tents, three heavy reindeer-skin sleeping-bags, and a quantity of provisions. Their instructions were to proceed up the valley and the left moraine of the glacier, then to turn up the great north-west face of Aconcagua, and climb about 2,000 feet till they should either find the site of FitzGerald's middle camp or some other convenient camping ground. When they had disappeared I set out alone.

The flat floor of the valley near the tents was covered with old beds of winter snow, carved out into *nieves penitentes*. I traversed these and climbed the opposite hillside, rounding over presently into the deep side valley that opened opposite our base camp. The upper part of it was filled with glacier, the lower part occupied by a strange white formation of ice or snow, the nature of which was not apparent from a distance. Scrambling over steep beds of *débris* I came to this white phenomenon, and found it to be a series of crystalline terraces formed by the freezing of the torrent. The water had been choked back at different levels by dams of snow, first permeated by it, then frozen hard into a solid block. With



the rapid melting of the snow-field above, the torrent had come down by day in greater volume, forming a series of cascades, which the frosts of the evening had turned into a fringe of icicles. I spent several hours wandering up the gorge, whose sides were of the many coloured rocks of this region, brilliantly contrasting with the marble-like whiteness of the ice staircase between them. Having ascended 1,500 feet or so, I hoped to obtain a photographable view of the great mountain opposite, but it towered aloft clear out of reach of my camera, and neither the distance I had gone away from it nor the ascent I had made perceptibly reduced the angle to its summit.

Returning to the ice staircase, I sat for a while beside it, drinking in the joy of solitude. There was not a human being within miles, nor the smallest trace of one ever having passed this way. There was neither sight nor sound of any living thing; not a bird hovered over the rocks or bespeckled the unbroken blue of the pure sky. I could not find an insect among the stones nor even so much as a blade of grass. Only rocks, sand, and ice near by, and the bare mountains towering aloft to incredible heights further away. It was the loneliest place: the heavens only were gazing upon earth, and earth upon the heavens.

“The solemn peaks but to the stars are known,  
But to the stars and the cold lunar beams.  
Alone the sun arises, and alone  
Spring the great streams.”

With the ascending sun came warmth upon the snows. The ice-crystals ticked as they broke up in the heat, and the freed water played a merry tinkling song among the icicles and over the stones. A slight breeze fanned the surface of the hills, and now and again a rock came booming down some slope, raising a peal of echoes that only served to punctuate the great silence. With advancing day the shadows crept back into the deepest clefts and recesses of the rocks, and the royal Sun poured his effulgence upon peak and valley alike, effacing every detail in the general splendour of his overpowering light.

I strolled down again to the *nieves penitentes*, and devoted a couple of hours to their rare and beautiful phenomena. They may best be described as spires of snow, standing close together and sometimes arranged roughly in rows. They are never formed of new snow, but carved by the action of natural forces out of well consolidated snow-beds. I have never seen them in any part of the Himalayas or other Asiatic mountains, nor read of their being observed anywhere in the Old World. They are not found in Alaska or British Columbia; but they appear in Mexico, on the slopes of Orizaba and the neighbouring volcanoes. I saw no trace of them in Peru or in Bolivia, neither did I observe them on the mountains bordering Smyth's Channel, nor in the Fuegian Archipelago.

Dr. Moreno tells me that they are not found

south of the Maipu Pass, or north of the Puna of Atacama. He also assured me that they are much larger near their northern limit than in the south. Their formation has generally been ascribed to the action of powerful and eddying winds, which are conceived as hollowing out the snow at some points and piling it up at others. If this were the case, the largest would be built of new-fallen snow, for no wind that blows can possibly rearrange a bed of snow whose surface has been thawed and frozen again into the solid stuff that covers all old beds. The *penitentes* which I saw were formed out of old avalanche beds, the hardest kind of snow there is. A fallen avalanche on coming to rest is subject to pressures roughly perpendicular to the direction of its fall, and thus hardens into strata of different densities, often dipping in a direction approximately vertical. Where such was the case the *penitentes* stood in rows, corresponding to the harder strata. If wind were the agent of their formation, *penitentes* would assuredly be found upon the Greenland ice-cap or the wind-swept glaciers of Spitsbergen. Still more certainly would they have been recorded in the Pamirs, the Karakoram, or the mountains of Ladak, perhaps the windiest places in the world. In my opinion the wind has nothing whatever to do with their origin. They are carved out by the melting action of direct solar radiation, and by nothing else.

A careful examination revealed the fact that



NIEVES PENITENTES IN PROCESS  
OF FORMATION.

*To face p. 66.*



the spires were hardly ever circular in section or planted vertically. They were roughly elliptical, and somewhat bent over to the north. The major axes of the elliptical sections were oriented east and west. If the position was shaded on the east by any neighbouring impediment, the east end of the axis of the ellipse deviated to the north. If a near shadow fell from the west, the west end had a northerly deviation. These observations set me on the right track, and I began searching for *penitentes* in different stages of development. A thick bed of well-compacted snow, when submitted to the action of the sun, soon becomes pitted over with little saucer-like depressions. Unless deeply smothered by freshly fallen snow, these gradually deepen, and the deeper they become the less power do the sun's rays have upon their sides and the more on the bottoms of the depressions. In the southern hemisphere the south side of a depression facing the mid-day sun will be more rapidly melted than the north, and the steeper the sides get the more completely will the heat rays be reflected off them towards the bottom of the depression. The hollows, enlarging, ultimately run into one another, leaving rough pyramids of snow standing up between them. These pyramids in the first instance are bounded by concave faces, but the concavities gradually disappear. As soon as their summits have attained to sharpness they present a minimum of surface to the heat, whilst the sun

continues to deepen and enlarge the depressions between the spires till the snow is bored away to the ground beneath. The longer the process continues the higher do the spires become (until the ground is reached), and the larger the spaces between the spires. Ultimately the spires are entirely separated one from another, and are often seen standing about on a stony floor like so many separate sugar cones. Of course, if fresh snow were to fall in any great quantity the whole forest of cones might conceivably be buried, but as long as only moderate falls occur the returning sun melts the lightly packed crystals away in the bottoms of the hollows, and the process goes forward once more ; but I never found *penitentes* at a level where snow falls in summer to any considerable extent.

I do not believe that *nieves penitentes* are ever formed out of beds of snow of the moderate thickness resulting from direct deposit from the sky. As the height of a spire merely measures the different rate of melting in the hollows (where the rays both penetrate and are reflected from the sides) and of melting at the sharp top under direct radiation without the additional reflected rays, it follows that the spires, whatever their height, must be the remains of snow-beds several times as thick as the spires are high.

As the snow must be well compacted and yet not ice, it is hardly likely that any but avalanche



NIEVES PENITENTES: THE LAST  
STAGE.

*To face p. 68.*





snow will fulfil the conditions. The largest *penitentes* I saw were from two to three feet high, and were still growing by the deepening of the hollows between them, which had not yet penetrated to the ground.

At a later season of the year, on the slopes of Tupungato, Mr. Vines found great slopes of *penitentes* at least twice that height. Closely examining individual spires, I always found them stratified exactly like their neighbours, and there can be no doubt whatever that they are formed out of snow-beds, and not built up. Where avalanches fall at intervals of a few weeks blown dust settling on the surface of an earlier fall is often incorporated as a dark stratum below a later one. When a bed of snow containing such a stratum is carved out into *penitentes* the stratum can be seen cutting horizontally through a whole series. Again, there is a rough equality of height in the *penitentes* of any one snow-bed; they stand together like a field of corn or the trees of a forest. If by accident one loses its head, and so presents a blunt surface to the zenith, it soon gets cut down, and the lower it sinks relatively to its neighbours the more it suffers from reflected, in addition to direct radiant solar heat. In low latitudes, where the sun never rises very high above the horizon, this phenomenon cannot be produced. Nor is it to be expected, save where the sun's radiation has great power, that is to say at high altitudes, where evaporation is so

rapid that the melted snow does not lie and freeze again at the bottom of the hollows. The snow-bed must be pure. Any snow-bed containing a large quantity of dirt, except in strata, was evidently unsuitable, not giving rise to spires more than a few inches high.

The tilt of the vertical axis of a spire towards the north in the southern hemisphere, or the south in the northern hemisphere, must necessarily be a function of the sun's meridian altitude, that is to say of the latitude of the place. In low latitudes the spires, if they could be formed at all, would of necessity bend over so steeply that before attaining any size they would break off by their own weight. It is obvious that they cannot be formed in the Alps, because the elevations—where the air is thin enough to allow of a sufficiently strong solar radiation acting directly on the snow without appreciably warming the thin air—are those at which heavy snowfalls take place at all times of the year. It would be an interesting experiment to wall in with boards a small area of *nivé*, say on the summit of the Theodul Pass, leaving the surface exposed to the action of the sun on fine days, but protecting it by some sort of movable roof against falls of fresh snow. It might possibly be found that small *penitentes* would be formed in a relatively short time, unless, indeed, the difference in character between *nivé* and avalanche snow be enough to forbid the process.

Occupied so agreeably with this novel research, I had wandered up the main valley some distance above the base camp. Continuing a little further over *débris* fans clear of snow, I presently found myself in an area strewn with broken and rusty tins, fringing three or four flat places, evidently levelled for tents, the place of FitzGerald's 14,000 feet camp. It was not so comfortable a camping ground as ours, nor so well protected, but it had the merit of being half a mile nearer the mountain. A track led up behind it on to the left moraine of the glacier which fills the head of the valley, and here I could identify the footsteps of my own men. Following along the stony way, I presently came close to the glacier, and after mounting and descending a series of sandy mounds sat down on the summit of the last of them, separated from the great north-west slope by a flat bed of avalanche snow. A cone of snow led up from it to a snow-filled gully that rose a thousand feet or more, at first lying between walls of rock, but higher up flanked only by the screes that cover so large a part of this extraordinary face.

Now for the first time I realised the architecture of the mountain. Its substance is stratified in beds of volcanic rock, which may be conceived of as approximately horizontal. They vary much in hardness, friability, and texture. Some of them, therefore, weather more easily than others. Thus the substance of the peak on this side is carved into

a great staircase. But the enormous quantity of *débris* continually pouring down from above so smothers the steps that many of them are quite out of sight, and only the faces of the larger emerge from the screes. The steps are better preserved towards the right and left hand sides of the slope than in the middle, where the downward drift of *débris* and the fall of snow avalanches is most frequent. The edges of the steps are there completely worn away and buried. The flow of *débris* down the face is such that the fragments tend to become rounded or sub-angular, like pebbles in a brook, by their friction one against another. When we were descending the mountain a few days later the stones at one point (about 20,500 feet) poured away beneath my feet and disclosed the subjacent rock, which I perceived to be ground quite smooth by the passage of the *débris* over it. The rock was only visible for a moment, for a flood of screes came down upon it from above and buried it a foot deep out of my sight.

Seen from the foot, the surface of the *débris* on the great face was foreshortened. The little cliffs, the fronts of the steps, rising one above another, had the appearance of a rocky wall, so that I began to doubt whether the ascent would prove so easy a matter. The little cliffs were broken by many steep gullies, which made them look like palisades, the name by which I shall hereafter designate them. It was here I looked for traces of my

porters; but I was gazing in the wrong direction. They presently came in sight much further to the left, beside the snow *couloir*. It was 2 p.m.; and I was sorry to see them return thus early, thinking that they might have established the camp at a higher point than they had chosen. They hailed me with the good news that they had found Fitzgerald's 16,000 feet camp place without difficulty. It was all I could desire. "It is an excellent camping ground," said Maquignaz, casting himself upon the stones by my side and preparing to load his pipe; "quite a large flat place, above one of those little cliffs. I was glad to get there, I can tell you, for carrying a load up these loose stones is no light work, and at such a height above the sea too."

"Then," said I, "you don't agree with the gentlemen who assert that a man in good condition can work just as hard at 15,000 feet as at sea level, and not be conscious of any difference?"

"That's nonsense," he replied, knocking his pipe rather viciously against a rock; "absolute nonsense! Pellissier and I are in as good condition as men can be, and we knew the difference, I can tell you. It was just the same on Mount St. Elias, though there we only had to carry heavy loads to 14,000 feet. The higher you get the harder the work is. For the last 2,000 feet of Mount St. Elias we were only lightly, or not at all, laden, but there was not one of us who did not have to stop every

few minutes and pant for breath ; and that after a month's hard work and good feeding, when we were all as strong as we could be."

"I suppose," said I, "that some men were better than others high up, as they are below?"

"Of course," he replied ; "if a man is stronger than another below, he can remain stronger above ; but we all felt the effect of the height just as we all felt it to-day."

"How did the peons go?" I asked.

"Anacleto," he replied, "went like a goat. He was the best of us all ; but the other fellow is no good, he was always sitting down and saying he was ill. Anacleto seems to have had experience in carrying loads over the Cumbre in winter. Besides, he is keen to go up the mountain, and wants to do all he can to help us. If only he had brought warmer clothes with him, we might have taken him on to the top. There is nothing in the world he would like better."

A minute or two later Anacleto came up, his face radiant with satisfaction ; I never saw a man more delighted to be upon mountains. From such human material an excellent guide could easily be made. As the evening approached the cloudless day drew superbly to its close. We pictured to ourselves the sun sinking into the Pacific as it cast upon the great mountain the robe of crimson light that clothed its top 6,000 feet in matchless glory. The red of sunset beautifies

every mountain, but when it falls on cliffs of a rich individual tint, such as the Dolomites, or the beautiful limestone peaks of central Spitsbergen, or these volcanic crags, the glow that pours from them can be suggested by no pigment in the world. It is like the live core of a volcano.



## CHAPTER III.

### THE ASCENT OF ACONCAGUA.

**A**T half-past six next morning (December 5th) we started from our base camp—the two guides, two peons, and myself. We carried the remainder of our equipment for the mountain. The whole day was before us, there was no need for hurry; but the morning shadow chilled the air, so that we felt little inclination to linger by the way. An hour's easy walk carried us up to the very foot of the peak, where I noticed a most admirable camping ground among big fallen rocks. With a little trouble mules might be taken to this point, whence a quick party in good condition could climb the mountain in two days. A ten minutes' scramble up the avalanche snow-fan led to the true beginning of the climb. At first we followed a small zigzag track up the *débris* slope, but it soon grew faint, and was finally lost a couple of hundred feet higher. When the sun topped the mountain and poured a flood of light down the slope, a halt was called in order to welcome him with incense of tobacco. Looking down on the glacier, I observed that for some distance from the snout it was covered with a thick bed of moraine, such as I have elsewhere

only seen on the three great glaciers of the Karakoram. As in their case, there were large ponds on the surface of this glacier, and great stone-covered mounds.

For a short distance the *débris* slope was still masked by hard snow, which we climbed in fifteen minutes to the loose stones above. Two or three steps on them sufficed. With one accord we turned into a snow gully, and climbed straight up it in an almost exactly south-east direction. We trudged on slowly for an hour and a half. Sometimes steps had to be cut, for which, as I had not to cut them, I was thankful. The climb was perfectly easy, and the view ahead and to right and left entirely uninteresting. There were only the palisades and the blistering sun above; the stone slopes on either hand. I frequently turned round to watch the development of the view behind, where the fine peaks of the Torlosa range seemed growing as we went up. The bare Horcones Valley, closed by the mass of Almacenes in one direction and by the terminal glacier in the other, displayed its desert floor and many-coloured slopes in ever greater extent.

Near the top of the *couloir* on our right came the first palisade, which afforded a rock scramble, a delightful change from snow plodding and *débris* pounding. But it was all too short, and gave immediate access to a large, almost level platform, with another palisade beyond, supporting a

smaller platform. On this second platform we pitched our camp about noon.

The sun had been scorching us furiously, so that all were suffering from violent headaches. The labour involved in digging out or building up flat places for the tents was, if anything, worse than the toil of the ascent. The second peon utterly broke down, and the temper of every one of us, except Anacleto, was sorely tried. Notwithstanding the power of the sun, the air was too cold for sitting in the open. When the three tents were set up we crawled into them, but obtained no relief. The interior of a single fly tent when the sun shines upon it is a place of torment. The canvas seems only to diminish the amount of light, whilst aggravating all the other painful qualities of fierce solar radiation. The suffocating stuffiness within was a wretched alternative to the chill and glare without. All spent a miserable afternoon, though surrounded by one of the noblest views that it is possible to conceive.

Conversation lapsed. An almost blank page in my note-book and the absence of any photographs taken from this spot indicate that I was overtaken by the mental lassitude peculiar to high camps, which every climber at great altitudes has observed. The view stretched from the great Tupungato, round countless beautiful peaks and snowy hollows, to far distant blue hills in the south-west and west. Beyond them it extended to a misty violet distance,

where earth melted into sky, and yet further round to the level surface of the Pacific, beheld through a gap in the opposite range. I was dimly conscious of this glory, but could take no pleasure in it.

In the afternoon heavy clouds mounted everywhere aloft, save between us and the blazing, scorching sun. I watched them in helpless misery. At length, closing my eyes, I wrapped a coat about my head and counted its throbs, each like the piercing of a dagger into the temple. How slow seemed the westward journey of the hateful tyrant of the sky! But he sank at last. The clouds all faded away; the headaches departed. The evening glow illumined us also, and all was hope and cheerfulness again. For a short half-hour we could sit out upon the rocks and discuss the morrow's route. The way seemed plain enough; first two or three rows of palisades to be passed by *débris* slopes and gullies, then a larger red row which must be turned at its northern end. Above that we expected to find the higher camping ground. Long before darkness came on the cold drove us into our tents, where we consumed a light supper of soup and biscuits, and later of chocolate. Then we turned over in our fur bags to woo sleep.

The lowest temperature that night was 10° Fahrenheit. At 6 a.m. it had risen to 14°, when Maquignaz roused me with a hot bowl of soup. Another perfect day (December 6th) had dawned, and the only drawback we knew

of was that the second peon was ill and unable to work. A cold wind blew in gusts when we started, a little before 7 a.m. The loss of a porter rendered it necessary to leave behind one tent, a considerable quantity of provisions, the barometer, and everything that could be spared. We carried off the other two small tents for the guides and me, the fur sleeping-bags, petroleum stove, and enough food for three days. The climb began at once with a long slow plod up a slope of *débris*, where the stones, though loose and always giving way under the foot, were not nearly so loose as we found them next day. Yet from the very start it was impossible to advance more than five minutes at a time without a halt to draw breath.

Every climber knows that nothing is so fatiguing as the giving way of a footstep in ascent. Even at low levels there is something particularly exasperating in sliding backwards. The whole art of climbing consists in raising the body by a continuous series of movements without jerks. Each muscle has to be brought slowly and steadily into play, and slowly relaxed when it has done its work. The giving way of a footstep makes a sudden call upon unexpected muscles, and inevitably interrupts the continuity of the action of the lungs, giving rise to catchings of the breath. At high levels it is above all things important that the breath should never be caught. An uninterrupted series of inspirations and expirations, long, deep, and rela-

tively slow, are the secret of comfort and strength. Every time the breath is suddenly caught a halt is imperatively called for. Three or four ample breaths have to be taken, and the slow deep breathing re-established, before the head can be cleared of the giddiness and throbbing which catchings of the breath produce. For this reason a slope of scree like that of Aconcagua, still more a slope of deep powdery snow, such as I encountered on Mount Sorata in Bolivia, is the most toilsome kind of impediment that a man can be called upon to surmount at a high level. If the *débris* had been of large dimensions, or had contained any considerable proportion of large fragments, there would have been patches of tolerably firm footing. Such, however, were rare. As a rule, the stones were small and lay at the critical angle, where the least additional force exerted downward set them in motion.

Our upward progress, therefore, was absolute floundering. The moment the advanced leg was straightened and the weight of the body lifted on to it, the footing gave way. Of the six or eight inches that the body had been raised, three or four were lost. Thus, to climb a thousand feet up such a slope is equivalent to raising the body fifteen hundred feet, with the additional sacrifice of physical strength involved by the interruption of breathing and the great extra labour thrown upon heart and lungs.

Here again Anacleto suffered less than any of us, partly because of his splendidly hard condition and strength, partly through long practice in scrambling up slopes of *débris*. I noticed that, though heavily laden, he slipped back less than we did. If he thereby saved a hundred feet of unnecessary ascent in a thousand, the advantage so gained was enormous. How long the ascent of these *débris* may have occupied I do not know. Above them came another shelf, where likewise was excellent camping ground. Half an hour further, up *débris*, came yet another good tent platform, at the foot of a gully near the north end of the conspicuous palisades of red rock, which can be easily identified from any point whence the north-west slope is plainly to be seen. Scrambling up this gully, or the rocks beside it, we came out upon the red-fronted shelf. From this point an unbroken slope of *débris* led to the highest cliffs of the peak.

These final cliffs, though many times larger than the palisades below, are of essentially the same character, and have been produced by the same means; but as there are no *débris* slopes above them to pour down stony cascades, they stand up far higher than the others, and form the most prominent feature of the upper part of the mountain. When seen in profile they appear impossible of ascent, but on coming in front of them they are perceived to be penetrated by deep gullies,

whose floor is approximately of the same slope as the *débris* below. Of these gullies the two furthest toward the north were of immediate importance to us. They are separated from one another by a fragment of the cliff and a buttress connected with the summit ridge, but, as the gullies widen inward like amphitheatres, they have eaten away a great part of the buttress, and are carving its cliff-faced end into an isolated pinnacle.

The frontispiece view of Aconcagua, photographed from the Smugglers' Pass, a few miles north of the Cumbre and approximately west of the great peak, shows the north-west face of the mountain, up which our ascent lay. The highest point visible in the photograph is the second summit (22,900 feet), from which a long ridge stretches backward to the slightly higher peak far behind. An irregular western ridge descends from the second peak and forms the southern boundary of the north-west *débris* slope, which in the photograph is covered with fresh-fallen snow. The nearer ridge, over which Aconcagua appears, is a part of the Torlosa range. The Horcones Valley lies between it and Aconcagua. The wall of rock seen at the foot of the visible part of the north-west slope towards its right side, running northward from the west *arête*, and just above the Torlosa ridge, is the red palisade. My top camp was just above this wall, behind the little teeth about two-fifths of the way from its left end. The camp from



which Vines and Zurbriggen made their ascents was situated, as will presently appear, near the left side of the great slope. In the photograph it is just hidden by the nearer ridge. At the top of the slope the reader will discover, on close inspection, the lower ends of three great gullies that run up south-eastward to the hidden final ridge. The furthest of these was that ascended by Zurbriggen and Vines. My route lay up the central gully, whilst a branch of the third or nearest gully leads, if I remember well, to the lowest depression in the summit ridge. In FitzGerald's book it is stated that the two further gullies lead to this lowest point; but this is not the case, for I ascended by the more southerly of them and came out at its head upon a point on the final ridge some distance between the lowest point and the northern peak. To the right or south of the west ridge from the second peak a deep gully will be observed. This stretches down to the Horcones Valley, and is filled with hard snow. I had some idea of ascending by it. It is well sheltered from wind, and a camp might be made in it at about 19,500 feet, whence the upper part of the north-west face would be accessible without difficulty.

Looking upward from where we now stood above the red palisade, the west ridge bounded our nearer view to the right, as the north-west ridge bounded it to the left. From both ridges a few short palisade-walls stretched into the slope,

but the stone *débris* were practically uninterrupted for half their width.\* Thus far, I think, we had followed in the steps of the previous party. The only map we possessed was the rough hand map with which FitzGerald illustrated the paper he read to the Royal Geographical Society. Misinterpreting the great curve of his track, I concluded that he must have turned to the right and camped above the red palisades; whereas he, in fact, turned to the left and camped close to the north-west *arête*. Bearing away, therefore, to the right, we came in a few minutes to a suitable camping ground, where we persuaded ourselves that the stones had been rearranged by human agency, and where our error was almost immediately reinforced by the discovery of an old rag, caught in a chink of the rocks and doubtless carried thither by wind. Camp was accordingly pitched, and leave given to Anacleto to go back to the lower tent, with orders to look out for us on the mountain next day, and meet us when we came down. Full of joy and excitement at being so high on the great peak, he started off at once to scramble upward on his own account. He followed the crags to the right for some distance, then struck straight across the face to the north-west *arête*, found traces of the previous party there, and came

\* The photograph of the upper part of the north-west face, opposite page 91 of FitzGerald's book, should be compared with the photograph from the Smugglers' Pass here reproduced. The same features can be identified in both.

back later to inform us. But all our arrangements were then made ; Pellissier, moreover, was suffering in his turn from some obscure form of mountain sickness, not the mere headache and lassitude experienced by us all. So we decided to remain where we were, at a height of about 18,500 feet.

The sun was not so painful this day, for a cold breeze was blowing. Moreover, I avoided the worst form of annoyance by sitting, not within the tent, but under a couple of fur sleeping-bags, supported over my head by ice-axes. These afforded effectual shade without stuffiness. As on a previous day, but to a greater degree, all were more or less afflicted with violent whooping coughs. They were caused by the dryness of our throats, induced by constantly breathing through the open mouth, for the nasal orifices are not large enough to admit the volume of air required to fill the lungs at these high altitudes. I have had the same experience several times before. Of course, the cough is not a true whooping-cough, but it sounds and feels just like one. On descending to lower levels it quickly disappears.

About 2 p.m. the sky became overcast, and a little snow fell. At three o'clock we heard thunder, and began to lament the outlook. By five o'clock all the clouds had again melted away, disclosing the magnificent scenery in perfect clearness, the mountains standing in marvellous array and a wide stretch of the Pacific plainly visible in the

west. As the sun went down I looked to see its light reflected upon the surface of the ocean, but no such thing happened. During the three days in which the Pacific was in our sight from the flanks or the summit of Aconcagua, not once did we observe the smallest glitter of sunlight reflected from the surface of its waters. It always remained dull and dark, like the surface of a desert of lead. The horizon line was clearly marked and illumined at and long after sunset by a band of fire, as if a forest were in flames along the margin of the world; all the mountains were decked with glorious colours, and the valleys flooded with purple shadows. But I could not linger in the open to enjoy this beauty, for my enfeebled circulation was unable to counteract, save under the stimulus of violent exertion, the 14 degrees of frost which prevailed even before the sun had sunk below the sea-line. While the Alpine glow was still bright I retired into my sleeping-bag and shut close the doors of the tent.

I was willing enough to turn in early, for it was our intention to start next morning at two o'clock. Readers of FitzGerald's book will remember well the painful experience of his party on the mountain when they started out before sunrise, and how Zurbriggen was frost-bitten on such an occasion. When Vines made his successful ascent he did not feel justified in leaving camp before dawn. Similar experiences six years before

in the Himalayas taught me that no ordinary mountaineering foot-gear suffices to protect the feet by night at really high altitudes. The ground seems to suck warmth out of the lower extremities; enfeebled circulation of the blood renders it impossible to make good the loss. It is necessary, therefore, to protect feet and legs with a thick layer of non-heat-conducting material. Leather is a relatively good conductor of heat. Though strong soles are an advantage, and in some kinds of climbing a necessity, little protection against cold is provided by thick uppers. Were the ascent to be merely over snow or firm rock with good foothold, boots might be discarded altogether, and their place taken by the sort of woollen foot-gloves worn in Kashmir. The great question, however, is that of stockings. I wore a thin pair of socks, a thick pair of Shetland wool stockings, and over them a very thick pair of Norwegian goat-hair stockings, such as they use in Norway for ski-running in mid-winter. For my feet, thus enlarged, boots had to be built specially. I am inclined to think that mine were made unnecessarily thick and heavy. Round ankle and leg was wound a wide and thick Kashmir puttee, three yards long. It might be thought that legs thus embaled would be encumbered, but at no time did I experience the smallest inconvenience from them, whilst entirely avoiding discomfort from cold. Maquignaz had roomy boots, capable of holding two layers of

stockings, and I was able to provide Pellissier with a goat-hair pair, but he neglected to put them on. In consequence of this equipment we could boldly start at any hour of the night we pleased, a very great advantage for a mountain ascent. As it happened, Pellissier probably owes his life to the fact that we were early afoot next morning (December 7th).

We did not, indeed, start at 2 a.m., which would have been unnecessarily early, though that was the hour desired by Maquignaz, but we were off by 3.30. The temperature was 5° Fahrenheit, and fell perceptibly as we went up. The night was brilliantly starlit. The constellations most familiar to me were all upside down in the north. The moon in its last quarter had not yet risen, and did not come over the mountain's crest till the grey light of dawn had crept upon our side of the world. With a lantern to search the way, we trudged across a nearly level patch of snow, stumbled up a gentle slope of large stones, and so came on to the long slope of *débris*. We kept as far to the right as possible, where the stones were larger and a little firmer than they are in the middle of the slope. The lantern was not required for much more than an hour. Soon after we had put it out, at the next palisades, we could see our camp below, apparently but a stone's throw distant, and the foot of the final gullies above, likewise seeming near at hand. In actual fact

they were probably more than half a mile away. I was conscious of allowing a large margin on the right side for self-deception when I estimated that we should reach these rocks in three hours; in my own heart of hearts I thought we should reach them in one. But when three hours had passed they seemed no nearer.

It is impossible to exaggerate the toil we underwent upon this slope; once only did a small patch of snow give momentary relief. It became apparent that the work was too heavy for Pellissier. He lagged further and further behind, and we had to make repeated halts for him to come up. He complained of pains in his inside, of indigestion and like derangements, from which he had been suffering for three days. His strength was thereby impaired, yet nothing would induce him to turn back. The higher we rose the more we were driven to the left and the looser the stones became. As they gave way beneath our feet we often fell violently to the ground, and lay panting like wounded men, unable to rise. Our breathing became louder and louder. It was a relief now and again to empty the lungs with a groan, and refill them with a more than ordinary volume of the thin air. Arms had to be kept well away from the sides to leave the lungs more free for expansion. The left hand was generally tucked into a waist belt, while the right grasped the head of the ice-axe and used it as a walking-stick. The

desire to halt frequently was intense, but the ever increasing cold as imperatively urged us to movement. With a warm fur-lined coat my body did not suffer severely from the cold, but my hands were in constant agony, each finger causing torture as acute as toothache; yet I was wearing the thickest gloves I have ever seen—a pair made of wolf fur, not inappropriately lined with lamb's wool. Moreover, they had long gauntlets of double wolf fur reaching right up to the elbow. Such gloves are found quite warm enough for the coldest weather of the long Arctic night. Above 21,000 feet, with a temperature near zero Fahrenheit, they seemed absolutely incapable of protecting the hands against the biting frost. Presumably the fault lay not in them, but in the impaired circulation.

The coming of dawn was hidden from us by the interposing mountain, so we lost all sight of the rich unfolding glories of the east. But from the moment the sun peeped above the invisible horizon we were magnificently recompensed, for it poured forth upon the world beneath us a flood of fiery radiance, save where interposing mountains flung out their long shadows. Its effulgence visibly permeated the air over the Pacific. Standing as we did on the shaded side of Aconcagua, and at no very great distance from the summit, we saw its great cone of purple shade reach out at the moment of sunrise to the remotest horizon, more than two hundred miles distant—not, be it observed, a mere



carpet of shadow on the ground, but a solid prism of purple, immersed in the glimmering flood of the crystalline sky, its outer surface enriched with layers of rainbow-tinted colour. We could see upon the ground the shadows of other mountains; but Aconcagua's shadow, in which we stood, alone revealed itself as substantial—not a plane, but a thing of three dimensions. With the rising of the sun, the remotest point of the shadow slowly dropped upon the ocean and travelled towards us, till it reached the Chilean shore, hurried over the low hills, dipped into the Horcones Valley, climbed the slope up which we had come, and finally reached our feet. Then as we raised our eyes to the crags aloft, lo! the blinding fires of the Sun God himself burning upon the crest and bringing to us the fulness of day!

Pellissier's condition had been growing worse. We now sat down and waited for him. On coming up with us he regretfully acknowledged that he could go no further. The light load was transferred to Maquignaz's shoulders, and Pellissier turned back. It was 7 a.m. I thought him looking ill, but for my own part actually realised no more than himself his real peril at that moment—the loss of his feet. He was perfectly confident of his ability to descend alone—itsself a prospective cure-all.

The mountain, of course, was entirely devoid of all ordinary dangers; indeed, from bottom to



**MERCEDARIO, FROM HIGH UP  
ON ACONCAGUA.**

*To face p. 52.*



top there is not a step of any difficulty whatever upon it. Nowhere need the rope be attached; there is not a single step that a child could not take. The ascent is a mere question of strength and endurance, physical and constitutional, very different from that of the almost equally high Pioneer Peak, which I climbed in the Karakoram in 1892.\*

Maquignaz and I now plodded on alone, choosing each his own way, but generally remaining pretty near together. We seldom spoke, unless it were to exchange a word of sympathy or to inquire how much longer the other one thought it would take to reach the foot of the rocks. At last Maquignaz burst out: "We shall never get there. Never, never, never!" "Oh yes, we shall," I replied, "if we have to stay and live on the mountain." To our right the rocks came down lower than the openings of the gullies, so about eight o'clock, or a little later, we actually touched them, and thenceforward climbed along the top edge of the *débris* with an occasional firm hand-hold on solid rock. This, however, was little help, for the higher you get on *débris* the looser they are. Where they lean

\* From the highest habitations, Askole, a very difficult march of four days (utterly impracticable for beasts of burden) led to the foot of the glacier. The glacier was itself very difficult for porters, and took seven days to ascend; thence five days of climbing through a dangerous ice-fall and up steep slopes and an *art de* of ice led to the summit. Food had to be carried for the whole journey and return, as well as for days of halt enforced by the terrible snow-storms.

against the rock-wall their readiness to slip away is superlative.

Another hour passed. The first irregular summit gully was left behind, and we turned the corner at the foot of the next. Its mouth was filled with a cone of smaller and looser stones than we had anywhere found. We sank into them as into sand. It was our intention to cross them diagonally, pass beneath the rocks beyond, and turn up the further gully, by which Zurbriggen and Vines made their ascents, and which stretches up almost to the highest peak. But the *débris* cone fairly beat us, so we hugged the rock on our right and turned up the gully. Before very long we came to larger rocks firmly wedged together and had rest from back-sliding. Searching out a kind of cave in the side wall, a hundred feet up the gully, we halted to eat a little food. The view from this point, though restricted, was most striking. Walls of rock shut us in closely on either hand. The last slope rose steeply behind, and the only outlook upon the wide world was through the narrow cleft by which we had entered. Even that was partially blocked up by a natural obelisk, wonderfully slender. I photographed it, but destroyed the negative by making a second exposure on the same film, a sign of high altitude stupidity.

The cold, or our sense of cold, was more keen than ever. Though the labour of scrambling was perhaps lessened, we suffered agonies in the struggle

to breathe, and every inch of elevation was only conquered by extreme toil. But the culminating ridge of the mountain was now near at hand, and the desire of seeing over supplied a powerful incentive to advance. Leaving at this spot our provisions and everything but the little camera, we pushed on. The wall on our left had now shrunk to insignificance; we could see over into Zurbriggen's gully. At last I heard a shout, looked up, and saw Maquignaz a yard or two above my head standing on the crest of the bed of snow that crowned the *arête*. In a moment I was beside him, and Argentina lay at our feet.

The southern snow face, delusively precipitous though actually as steep as snow can lie, dropped in a single fall to the glacier two miles below. It was not so deep a drop nor so precipitous as that down which we had looked from Illimani a few months before; but whereas then only the moon shed its vague illumination into the profound gulf, now bright sunlight illumined the hollow and made even more obvious its appalling profundity. To right and left for over a mile there stretched, like the fine edge of an incurved blade, the sharp snow *arête* which reaches from the slightly lower southern summit almost to the northern. It forms the top edge of the great snow slope down which we were looking, and is only visible from the Horcones side as a delicate silver crest edging

the rocks. At many points it overhung in big cornices, like frozen waves about to break.

The day had thus far been fine, but clouds were now gathering in the east. Fearful lest the view might soon be blotted out, I took a few photographs before moving on. We were not, be it observed, at or indeed very near the lowest point between the peaks. A blunt rib of rocks descending eastward close beside us, which is visible from the Inca road, identifies our position as about half way between the saddle and the top. The view abroad at this point differed little from that which we finally obtained. To the south was Tupungato, a majestic pile of snow, over which even more majestic clouds were presently to mount aloft. To the north was the still grander Mercedario, beheld round the flank of the final rocks. In the west were the hills dropping lower and lower to the Chilean shore, and then the purple ocean. To the north-east, like another ocean, lay the flat surface of the Argentine pampas. Elsewhere the Cordillera, in long parallel ridges running roughly north and south, stretched its great length along, crowding together into an inextricable tangle the distant peaks, partly hidden by the two near summits which alone interrupted the completeness of the panorama.

We attached ourselves to the rope, turned to the left, and proceeded to cut steps along the *arête* I had left my ice-axe in the gully, and regretted its



**LOOKING WEST FROM THE SUMMIT-  
RIDGE OF ACONCAGUA.**



**THE ARGENTINE PAMPAS FROM THE  
SUMMIT-RIDGE OF ACONCAGUA.**

*To face p. 96.*





absence, for balancing on the narrow knife-edge, with a drop of two miles on one side and three hundred feet or so on the other, was by no means easy without a pole to help, and with a stiff wind blowing. The *arête*, to be sure, was neither steep nor difficult, and the snow yielded easily to the axe—if any step-cutting at 23,000 feet, our approximate altitude at this point, can be called easy. We made steady progress, however, passing over one or two undulations, and finally mounting a stable summit fifty or sixty feet higher. The actually highest point (not to be neglected in a first ascent) was a little distance away, the snow ridge gave place to rocks flat and easy, and nothing was to do but pass along them perhaps a hundred yards, scramble up some *débris* and a few feet of firm rock, to be at that point.

I again halted to photograph, but the view was almost blotted out by clouds, and wholly disappeared when the work was done. The cold was so intense that my fingers refused to do their work. I must have been in a rather stupid condition too, as in fact I constantly forgot whether the film in the camera had just been exposed or made ready for exposure. The result was that when these negatives came to be developed there was nothing on three of them, and two views superimposed and mutually destructive on each of the other three. The panorama from this point was complete in all directions save for a small angle

in the now wholly overclouded north-west. As I was preparing to push on a little further before going down, Maquignaz said: "If this wind rises any higher we shall not be able to return along this *arête*, and so you will lose your ice-axe."

I did not know then that Vines, when he made the second ascent of Aconcagua, had left with his ice-axe a self-recording minimum thermometer in his cairn, else I fear the temptation to abandon my own trusty implement, which had companioned me since 1876 in the Alps, the Himalayas, Spitsbergen, and the Bolivian Andes, might have been too much for my share of human frailty. Obstacle there was none, and to know how cold it had been the two past years on Aconcagua, 23,100 feet above the Pacific tides, would have been well worth an ice-axe. Other considerations were moving me, thankless now to record; so, after just one more sweeping gaze around the vast panorama, I turned and made haste to retrace our steps.

We reached the top of the gully without incident, descended to where the food had been left, ate a mouthful, picked up my ice-axe, and set forward down the stones. The descent was nothing to be compared with the ascent; not that we did not toil and suffer exceedingly, but that each step carried us so far down, all the slipping being in our favour. If the stones had seemed loose on the way up, they seemed far looser now. Not only did they give way under our feet, but a whole area

of several yards square, and apparently to a considerable depth, was moving, or, as it were, flowing, around us all the time. I have never seen screes in a position of such unstable equilibrium. Maquignaz and I were fairly afraid that we should start an avalanche of them and become engulfed. To lessen the disturbance and danger we separated at least a hundred yards from one another and followed independent lines of descent. There is nothing to relate about this expeditious down going. One five minutes was like another. We often fell, and sometimes stuck fast, through the stones overflowing round our legs almost to the knees and holding us down. The tents, at first only visible through the glasses as little specks of green, presently became perceptible to the naked eye. It was an immense relief to make out Pellissier moving between them. Seeing him walk to a patch of snow and return, I concluded he had caught sight of us and was well enough to set about making a brew of soup.

In two hours and forty minutes from the top we rejoined him at camp once more. "I am glad you got up," he said. "I wish I had been with you; it's a bitter disappointment to come so far and then have to turn back." "How is your inside?" I asked. "That's all right," he said, "but I am badly frost-bitten. When I returned here and sat down I felt a little pain in one foot, and was surprised, for I had felt no discomfort in

my feet when I was so knocked up during the climb. I pulled off the boot and stockings, and was horrified to find the whole front part of my foot, from the instep to the tips of the toes, quite black. I pulled off the other boot, and found that foot in the same condition. Then, indeed, I was frightened, for I thought I must lose all my toes, and never be able to climb any more. So I fetched some snow at once and started rubbing as hard as I could, and rubbed them for five hours, only pausing now and again to draw breath. Gradually they came to life a little, and the pain was awful; but I knew that was a good sign, and went on rubbing, for I have seen plenty of people frost-bitten in our valley, and so I knew just what to do. I only left off rubbing when I saw you coming down, and have made this soup, which I hope you will find good. An hour ago Anacleto came up, and he rubbed me a little while I made the soup. Now, you see, only the tips of my three biggest toes on both feet are black; I don't think any amount of rubbing will do them any good. At present they don't hurt much, but I shall hardly be able to climb any more for a month or two, I expect."

"It's a lucky thing," I thought, "that Inca is so near." Of course, my decision was to descend immediately, while Pellissier could still draw on his boots. Long before next morning his feet would be swollen; great blisters would form on the toes just like burns, and he would hardly be

able to stand. It was essential, therefore, to take him down to the base camp in the next few hours whence he could ride the remainder of the way.

We packed up camp, and were off within the hour. Forty minutes later we were at the middle camp, where we found the second porter asleep in his tent. We roused him up, loaded the tent and things on to his back, and set off down again. Maquignaz and I raised the echoes with our whooping coughs, but felt better every downward dozen yards. Our headaches had been left behind on the summit, and we were suffering little from fatigue. At ten minutes past four the middle tent platform was passed, and we soon reached the top of the *couloir*. Bundles of luggage were unceremoniously thrown down it and rolled swiftly to the bottom. Anacleto kept the roll of sleeping-bags, upon which he insisted that I should seat myself. He tied one end of his belt to its cord, held the other in his hand, and started running down the soft snow slope, dragging me behind him as on a sledge. The bundle frequently turned over on one side or the other, and pitched me off. Snow drifted in at my neck and up my sleeves, and every mishap that occurred was occasion to him of renewed delight. Never was man in more frolicsome humour. He laughed, shouted, and sang without cessation. "I know the way up Aconcagua," he said; "I alone of all the people hereabouts; and

now I will set up as guide and take people to the top. I, Anacleto Olavarria, Guide to Aconcagua."

In forty minutes we reached the moraine. Half an hour later, at 6 p.m., we arrived at our own base camp with all our baggage, and Pellissier was at once put to bed. The entire descent, including all halts for food and packing, had been accomplished in less than six hours. In that time we had come down 10,000 feet. We were met at the tents by a peon who had come up with a mule from Inca. He had brought another load of provisions and, what was more to the point, a bottle of cordial, sent by Dr. Cotton, with instructions to drink a small glass of it now and again. We impartially divided the whole at once, and drank it then and there. Nothing could have suited our complaint better at the moment. The man was straightway sent off to summon the mules from the upper ford; they were to come up at peep of day and carry us down. What the sunset may have been like, or the night that followed, I cannot say. We were all happy together, Pellissier not the least, seated or lying in our sleeping-bags in the big warm tent, whilst we cooked and ate a succession of suppers and smoked countless pipes. At last we turned over and slept till the sun was high next day (December 8th).

The moment I looked forth through the tent doors I recognised that a great change had taken place in the weather. A violent gale was driving

a bed of clouds over the summit rocks of Aconcagua, which looked like the teeth of an enormous comb carding a gigantic fleece of wool. One might have spent a miserable time in a high camp that day, but certainly could not have lived if long exposed on the upper rocks. As a matter of fact, the spell of fine weather was ended. During the next twelve days, as will be seen, it went from bad to worse. Enormous quantities of snow fell, down to levels quite unusual at this time of the year; the lowlands were inundated with rain. We had snatched our climb on what was practically the only possible day for us. We had arrived from Valparaiso the first day we could. We had made the ascent without delay; if we had been twenty-four hours later, it would have been impossible to accomplish the climb, perhaps, for another month, and I had not a month to spare for it. Such good luck at a critical moment makes amends for a pile of photographic misfortunes.

The storm on the peak in no wise interfered with our comfort below, where the sun shone brightly and only gentle breezes blew. A little slender dun-coloured bird with a white belly and black tail, a pileated song sparrow (*Zonotrichia pileata*) perched and fluttered fearlessly about our camp. It was the first living thing we had seen since entering the upper part of the Horcones Valley, and had doubtless followed us up from lower regions. All the morning we impatiently



awaited the coming of the mules. At noon we saw them approaching. Camp was immediately struck, packing completed, and the loads were ready when the mules arrived.

At 12.30 we climbed into our saddles and departed. For an hour and a half we scrambled over the moraines, which seemed much more difficult than on the ascent. The mules several times stuck fast in the now softened snow-beds, and had to be unladen and dug out. Such an accident, particularly obstructive, took place among some *nieves penitentes*, where the mules not only sank in, but were wedged between the spires. Up and down the stone-chaos we scrambled, and across very steep slopes. On reaching the big rock where we had lunched this troublesome part of the journey was ended, and we emerged into the level desert valley. The sky was now overclouded, and shadows enriched the colour of the hills. In one place dark purple rocks stood up in incomparable dignity above sunlit orange slopes; over against them a dark red hillside was surmounted by a cliff striped white, black, and yellow in horizontal bands.

In descending a valley the scenery often produces a different impression from that received in ascending it. To-day I was struck by the beauty of the rock forms, quite as remarkable as their wondrous and infinitely varied colours. The changing sunshine and flying cloud-shadows

animated the scene. A cool breeze pouring upon us from behind kept man and beast in pleasant humour, very different from the mere suffering endurance we had to display in mounting under the blazing sunshine. On approaching the last angle of Aconcagua I noticed that its foundation rocks and those of Almacenes appeared to have an almost vertical dip. These foundation rocks may be the remains of older hills on which the horizontally bedded masses of the two volcanoes were built up. Closer investigation would be necessary before this could be asserted as a fact.

The view of Almacenes as one approaches it from the north is most imposing. Supported by bold buttresses, finely grouped, and crowned above with its glorious cliff, striped in countless beds of many colours, it rises beyond the dark moraine chaos at its foot, a splendid subject for a painter. Often as I regretted the absence of my old Himalayan artist companion A. D. McCormick, I never regretted him more than here. The smooth summit cliff and massive unbroken sky-line, the horizontal repose and lordly bulk of Almacenes, form an admirable contrast with the restless, aspiring precipitancy of the splintered peaks that face it from the other side of the valley.

We rode over the middle batch of old moraines, passed just above the crest of a waterfall, and descended the grassy gully between the moraine and the hillside. Here Anacleto would have had

us pitch our tents. "It is mid-afternoon," he said, "and the torrent will be at its height. We cannot cross the ford. This little grassy flat will make a fine camping ground, and here is a pool of fresh water close by." But I was all eagerness to get down, so I said: "Let the others stop here while you and I ride down and look at the ford. The peon can follow, and if he sees us get across he can bring down the mules." There was no mistake about it; the torrent was coming down in great volume. We could no longer jump over where we had jumped before, and must fight our way across the ford with the mules or spend the night on this side. We plunged in, and came fortunately across; it was just touch and go. Then we sat down till the others arrived. We threw the lasso across to them and held on to it with all our might. The first man came over safely, and helped us with the lasso. The next two were swept away. It took the united strength of all at our end of the rope to drag them ashore in turn and save them from being carried down the torrent and overwhelmed. I have never had a more exciting experience.

The second ford was reached without incident, for the steep snow-slope that had been so exciting to cross on the upward way had now melted back and disclosed a well-marked path at its foot. Dismounting from our mules, we avoided the second ford by walking over an arch of avalanche

snow that covered the torrent for some distance with a strong tunnel. Even Pellissier preferred to hobble over it rather than risk the passage of the lower ford. He could not wear boots this day, but had wrapped his poor feet in rags and slippers made roughly out of sacking and string. He was comfortable enough, he said, as long as he did not have to put his feet to the ground. The unladen beasts were driven easily over the torrent, and we remounted. A few yards further on I noticed columnar blocks of what seemed to be basalt lying near the path. They had evidently fallen from high up on the western hill. We were soon on the undulating moraines, where, setting spurs to our mules, Anacleto and I galloped away and did not draw rein till we reached the Baths of Inca, in exactly six hours' riding from our base camp. Dr. Cotton was at the door and came forward to greet us in a sympathetic manner.

"I am sorry to see you back so soon," he said, "but I suppose you concluded that the weather was broken?"

"Not at all," I replied. "We have come back because we have accomplished the ascent."

"What!" he said. "Already? It seems incredible. You have only been away from this house five days and a half. I congratulate you with all my heart."

The news soon spread through the hotel, and brought round us small crowds of natives, visitors,

and servants. Telegrams were sent to Valparaiso and Mendoza, and messages of congratulation came pouring in. The evening that followed was a happy one; not till the small hours did we retire to rest.

Next day we despatched the mules, laden with our baggage, to Cuevas, in order that, starting early thence in the morning, they might arrive at Salto del Soldado when we were due. It was a day of broken cloud and sunshine and rapid melting of the snows. The torrents came down in such furious flood that one of the coaches coming up from Vacas was swept away, and the passengers with difficulty saved their lives. The coaches following wisely turned back. Maquignaz rode down to Vacas for a day's outing. He got down all right in the morning, but arrived back hatless and drenched to the skin, mule and man having been carried off in the flood.

Shortly after noon a violent wind sprang up as I was sallying forth with Dr. Cotton for a ride. He assured me that a similar wind had blown every afternoon during our absence. It must be due to purely local causes, a down-valley draught from the cool uplands, for no such afternoon gales had troubled us on Aconcagua, or even in the Horcones Valley. The object of our ride was to visit the mountain called Penitentes, from the cathedral-like aspect of its summit and the row of rocks standing out of the slopes below, which are

supposed to resemble an ecclesiastical procession. They are well seen from the Vacas high road, and the mountain enjoys a greater local fame than even Aconcagua, though its altitude is inconsiderable. An easy ride over alfalfa fields and rough ground brought us to the foot of the side valley, whence the mountain was clearly visible, but we could not approach it without crossing the torrent, an impossibility in its then state of flood.

Riding slowly back, I discussed with Dr. Cotton the prospects of his Baths. He was sanguine as to their success, and said that every year they became better known and attracted increasing numbers of visitors, so that he was able to keep on improving and enlarging the buildings and otherwise developing the property.

“ I am thinking,” he said, “ that if people knew what splendid mountains there are about here Inca might become a climbing centre. It must always be the best starting point for Aconcagua, but no one who has not been here and climbed out of the valley can realise what a number of fine and very high peaks there are within easy reach all round. None of them have been climbed, except Penitentes. That is the Rigi of this district, for you can ride almost to the top. I should think there must be English climbers who would like to exchange a London winter for summer here. No journey could be easier or more delightful. The railway brings you from Buenos Ayres to Vacas,

and will I hope soon be carried on to Inca, and even to Cuevas. By the quickest route I am only about three weeks from London. The climbing season here is the time when Alpine guides are unemployed at home, so that I suppose they could be brought out cheaply, especially as the quickest steamers between Europe and the River Plate sail from Genoa. Anyhow, I hope that if you write an account of your visit here you will say that climbers will be well treated at Inca, and that I personally am ready to put myself out in every way to help them. As an Englishman, it makes me proud to have these mountains first climbed by parties of my countrymen."

## CHAPTER IV.

### FROM THE BATHS OF INCA TO CONCEPCION.

**A**T five o'clock next morning (December 10th) we said good-bye to Cotton and Darby, and rode away—Maquignaz, Pellissier, Anacleto, and I—mounted on four excellent mules. Pellissier was now suffering severely from his feet. Clearly, the sooner he could be got on board ship and put to bed the better for him. Dr. Cotton was of opinion that at least six weeks must pass before he could wear boots again.

A single red cloud glowed in the east when we set forth. In the west all was storm and darkness. Black clouds lay heavy on the pass; wind howled; a little snow was falling, though the air seemed warm. We dropped into the gloomy gorge below the Baths, and noticed that the river was fuller than ever. Along the valley the snow-beds were much smaller than a week before, and many a sad sign of human misfortune had emerged from beneath them. Here stood a cross where a man was killed two months ago; there a dozen marked the graves of as many, slain by an avalanche in the previous July. At several points I noticed experimental railway cuttings and the excavated mouth of what is intended to be the trans-Andine tunnel.



In an hour and a half we reached Cuevas, whence our mules had already started. We drank a cup of coffee, and proceeded to climb the pass. The caravan of post-mules was on ahead; we could hear the cheery oaths and peculiar ringing shouts of the arrieros. An hour's scramble carried us to the Cumbre, over whose bare top we had to fight a way in the teeth of a hurricane. Dropping quickly down the other side, we followed the hard deep-trodden furrow in the long snow-slope that led down to the high and almost level valley, where snow-bogs had formed so serious an impediment a week ago. But now the road had been fairly dug out. We were below the gale, and could advance rapidly and in comfort.

In an hour and three-quarters from the Cumbre we turned the Portillo corner and commenced descending the series of steep pitches down which the road and mule-path separately zigzag to Juncal. The ascent to this point from below had taken over three hours a week before; the descent occupied just thirty-five minutes, thanks to Anacleto's bold lead. Such riding down a steep hillside I had never seen. Where he went I was content to follow, in blind reliance upon his knowledge of what mules could do. He rode perfectly straight down the steepest slopes, even of big *débris*, and that not at a slow walk or with any careful picking of the way, but at a pace that was a sort of tumbling trot. Twice our direct route was intersected by

the zigzags at points where the road, being cut out of the hillside, was bordered by an almost vertical excavated wall, fifteen to twenty feet high. Here, at any rate, I looked to see Anacleto turn. But no such thing. He put his mule straight at the drop; and she, gathering up her legs beneath her so that the four hoofs were bunched together, let herself go scraping down the wall, till, arrived near the bottom, she gave a little kick and landed squarely in the middle of the road. I have seen a chamois act in a somewhat similar fashion, but never dreamed that horse or mule could be educated to such mountaineering skill. At these points I was content to seek a less theatrical line of descent.

We reached Juncal in five hours' riding from Inca, just in time to escape a torrential downpour of rain which thundered uproariously upon the corrugated iron roof. The rain gave place to hail and snow; wind howled among the hills, and occasionally fell like an avalanche upon the house. During a momentary clearance we sallied forth once more, cantering as hard as the mules could go, in hopes to avoid a ducking. But the storm soon broke again in our teeth, casting hailstones as big as bullets—the shrapnel of the skies. The swollen torrent roared along beside us, sucking down into its waters, like a waving fringe of seaweed, the pampa grass that should gracefully overhang its margin. Hail and rain were at last left

behind. We came out once more into sunshine, where the road passed between beautiful shrubs, glittering with wet, and brightly blossoming cacti.

At Rio Blanco, a station of the Telegraph Company, I found myself expected by Mr. Murray, the official in charge, and his English servant, an old sailor. There was beer to drink, food to eat, and a telephone with the lines clear at the moment to Valparaiso and Los Andes. I was put into communication with various kind friends, who invited me to all sorts of pleasant entertainments; and I likewise received from Mr. Gosling the satisfactory intelligence that, at his request, the Chilean Government had graciously placed at my disposal, in the Straits of Magellan, a gunboat to take me to the foot of any mountain I wished to climb there. Adams, the retired sailor, fell into conversation with Maquignaz—one talking Spanish, the other Italian. They were extremely interested in the matter under discussion, making violent efforts to understand and be understood. By some means they had discovered a common subject of interest in Mount St. Elias, in sight of which Adams had often cruised, whilst Maquignaz had made the first ascent of it with the Duke of the Abruzzi.

After a long halt, we jumped on to our mules again, and raced at top speed and in highest spirits to the railway station of Salto del Soldado,

where the baggage had already arrived. With a great struggle the things were weighed and registered. It only remained to take farewell of Anacleto, to whom I had become genuinely attached. He is one of the best assistants amongst the many good ones I have encountered in different parts of the world. I presented him with a tent, an ice-axe, rope, climbing boots, and a few other small articles. He was proudly conscious of possessing a new dignity as guide to Aconcagua.

A quarter of an hour after the train should have started, the railway men quitted a desultory conversation and went to look for a truck to be added to the train. Seeking out a siding as far removed as possible from the goods to be laden, they pushed the truck there, and with infinite toil carried the baggage to it. When half the work was done the brilliant idea struck them to move the train out of the way and bring the truck up to the platform. But the engine-driver could not be found. When he was fetched, they tangled the train and the truck up by confusing the points, and always got one of them in a position that prevented the other one from moving. After three failures, their efforts were crowned with success, and loading went forward. A French traveller reached out and protested that at this rate we should miss our connection at Los Andes. "It's no matter," replied the guard; "there's plenty of time."

There always is plenty of time in South America, that is the charm of the continent. The train made its first start about an hour late, having stood idle in the station for an hour and a quarter before that. Before finally getting away they made five false starts, having forgotten in turn to lock the luggage van and to pick up different people who came running out of the station and calling back the train. When we did get off, at last, the guard was almost left behind.

As we travelled downwards the thick vegetation ceased to carpet the ground completely; the green broke up into patches, and brown began to protrude. Meadows were golden with ripening hay; hills sank and rounded; we were back in the low-lying lands of teeming men and midsummer weather. Trees shot up; artificially irrigated gardens were bright with flowers; the valley widened; the only memory of Nature's savagery that remained was the raging river bearing its terrific message from the heights. Far back the Lion mountain, swathed in storm-cloud, showed whence and how the waters came.

Mr. Tuffield, of the Telegraph Service, met me at Los Andes and took me to his office, where I was again put into telephonic communication with various people. He also presented me with a map of the trans-Andine route, and drove me round the town. I noticed that all the trees here, as further up the valley, bent over eastward, away

from the prevailing wind, thus confirming my previous conclusion—that the great falls of snow upon the Andes are precipitated from a westerly current of damp air. Few places are more beautifully situated than Los Andes, or enjoy a climate and soil more propitious for gardening; not even Kashmir. Los Andes should import the chinar tree. Then, with its poplars and its plain at the foot of the hills, its mud roads and its bullock carts, it would only lack the lazy Jhelam, the Mogul gardens, the ruined temples, the mosques, and the picturesque traditions of antiquity to make it the very duplicate of that lovely land. The train, starting punctually, carried us without incident to Llai-Llai, where we dined sumptuously in the buffet, and Pellissier created quite a sensation with his padded and sack-clothed feet. Jumping into the express from Santiago, we reached Valparaiso before midnight, and returned to our quarters in the Hotel Colon on the tenth day after quitting them.

It would be pleasant to linger over the hospitalities of Valparaiso and its delightful neighbourhood, to recall the cricket matches I watched, the afternoon teas in shady arbours near the laughing sea, the long drives out to country houses, and the excellent dinners that followed them. But this book is no place for such civilised reminiscences. The English and German society of Valparaiso, as I saw it, is better instructed and more cultured

than the corresponding upper class of most English mercantile communities. Their expatriation makes them a reading folk, and their business brings them in contact with a wide range of interests and with people of many races. Gladly as I should have lingered among them, the shortness of the time now at my disposal made every day precious if anything was to be accomplished in Tierra del Fuego, for Maquignaz had to be at his home by the end of January to look after his farm, an imperative claim. Within forty-eight hours of my return I had settled all my business,\* arranged for passages to Sandy Point (Punta Arenas), in the Straits of Magellan, by the s.s. *Tanis*, of the German Cosmos Line, packed the baggage, transported it and the two guides on to the steamer, and myself taken the afternoon express train, in company with Mr. S. H. Henn, of Concepcion, to Santiago.

The weather continued bad. Mist hung over Valparaiso itself, and even a little rain fell, a most rare occurrence there at this time of year. The train was far the quickest and best that I saw in South America. It carried us back to Llai-Llai, along the line I had already traversed twice, and there branched off to the right. The country was even fuller of flowers than two days before, and the

\* It may interest mountaineers to know that the entire expense of my Aconcagua climb, for the ten days from Valparaiso and back, only amounted to £50. This, of course, does not include the Swiss guides' fee, but Swiss guides are quite unnecessary for Aconcagua.

stations were gay with bluish purple, blossoming jacaranda trees, whilst a mass of escholtzias closely bordering the line on either hand flashed together into a yellow cloud as we passed. I was informed that the plant had been imported as a garden flower from California, and had spread all over the country, especially along the railroads, where the seeds are carried by the draught of the trains. We arrived at Santiago late in the evening, and drove through spacious streets and alamedas to the Hotel Oddo.

The weather next day was abominable. Rain fell in torrents all the morning. As Santiago has little to show except the view of its beautiful surroundings, there was small attraction to a pilgrim out of doors. Near the edge of the town rises a basaltic hill called Cerro de Santa Lucia, a favourite resort of the inhabitants. Staircases and meandering paths are carved out or built up on all its flanks—a veritable maze—leading from one grotto or pavilion to another, wherein food and drinks can be purchased. The summit should command a magnificent panorama, but the first time I ascended it there was nothing whatever to be seen except the roofs and streets of the drenched town. I sat down alone on the top and shivered for cold, thinking that this experience was hardly worth a special journey from Valparaiso. But I was consoled by remembering that bad as the weather was on land, it must be still worse at sea.



Late in the afternoon, when I paid a second visit to the hill, the weather had greatly improved, and the long line of the Andes was visible in the east, stretching far away in both directions, its slopes whitened with new-fallen snow almost to their foot. Across the west ran another line of lower hills.

A great plain, probably an old lake basin, spread out between the two ranges, its flat surface here and there interrupted by the emergent summit of a buried hill. Along this plain or wide valley my southward journey was to be continued next day, a peopled, poplared plain, an agricultural district rich in

“—wheat and woodland, tilth and vineyard, hive and horse and herd.”

Overhead a beautifully complex, mist-filled air was shot through with the warm pink of the setting sun. The effect lasted but a moment. Gloom settled down once more with rain-storm.

Next day Henn and I travelled on to Concepcion in a train of comfortable Pullman cars. At first the Andes wall was clear beneath a grey overclouded sky, with drifting grey scarves of cloud drawn across its slopes. The mountains were not of impressive form, and I was unable to identify any peaks, whilst clouds too soon blotted the whole range out and we saw it no more. I had hoped to be shown the summit of the

volcanic Maipu, of which my friend Dr. Güssfeldt made the first ascent, but it never came into view.

My attention had to be concentrated on the foreground of fields and vineyards, artfully irrigated ; lines of poplars, acacias, and willows ; stone-walled, thatch-roofed houses, with gardens wherein hollyhocks, geraniums, lilies, roses, and fuchsias were riotously blossoming, almost throttling one another in the vigour of their life, and brightened by the varnish of wet. The foot-hills beyond the plain were speckled over with green. At rare intervals the landscape was completed with a view of crags above and snowy summits over all. Passing through the Angosturas, or narrow place where the two Cordilleras approach one another, we left the basin of the Maipu, and entered that of the next river to the south. We passed Chillan, and ultimately, following the right bank of the flooded and wide Bio-bio river in torrents of rain, reached Concepcion about sunset in a dry interval, and floundered up a muddy road to the hospitable shelter of Mr. Henn's house.

Concepcion is a city with a most unhappy past ; a frequent centre of internecine warfare with Araucanian Indians, of awful massacres and other horrors, of revolution, disorder, and continued insecurity. Nature herself has co-operated to blast the fortunes of the community by repeatedly shaking down their buildings with frightful earth-

quakes, so that the streets are encumbered with ruins to the present day; whilst hardly a week passes without a quivering reminder of the subterranean forces that are only slumbering beneath. Next day the *Tanis*, having called in at Tomé and Talcahuano, ought to have reached the coaling port of Coronel, but we learnt by telephone that she was weather-bound at Talcahuano. The storm continued to rage all day with unabated fury. I remained in the house or sauntered up and down the verandah watching the broad grey river flow past, and seldom seeing the further shore. It was a day of novel reading and entire repose, and the following was like unto it. What luck that we had just snatched the ascent of Aconcagua on the 7th! Clouds descended upon the peak on the 8th, came lower down on the 9th. Storm enveloped the Cordillera on the 10th down to Rio Blanco; on the 11th it reached a yet lower level; on the 12th rain fell at Valparaiso; it reached Santiago on the 13th, and enveloped Concepcion on the 14th, 15th, and 16th, while still raging over Aconcagua, as the telegraph informed us. Even the passage of the Cumbre was closed once more—a most exceptional event at midsummer.

On the night of the 16th the *Tanis* reached Coronel. Early next morning I went off by train to join her at the neighbouring port of Lota. Arriving there with a few hours' margin, I paid a brief visit to the prosperous copper mine for which

the port exists. The rest of my leisure was spent in the famous gardens of the proprietor. They occupy a little promontory that falls in steep rocky slopes to the sea. A house, like a modern French château, stands in the midst of beautiful lawns, which drop away to terraced gardens where every kind of sub-tropical plant grows with indescribable vigour. Winding paths, arched over with thickly interlacing shrubs and trees, led from terrace to terrace, or round and about the rocky declivities to beautiful points of view overhanging the ocean, whence the blue hills of the out-jutting coast are seen framed between palms and other graceful foliage. These paths, indeed, form almost a maze, and are twisted with profuse complexity. The luxuriance of growth impaired the effect of the formally arranged beds, for the flowers tumbled over one another and poured out upon the paths, defiant of order. The same exuberance turned trellises into solid walls, and made the over-arched paths like subterranean passages. There was even less glory of colour than might have been expected from such excess. In various enclosures were ostriches, vicuñas, peacocks, and the like. A little pool was the home of some gorgeously plumaged ducks.

While sitting in a bower at the extremity of the point I saw the *Tanis* come round and drop her anchor off the harbour. A few minutes later I was on board, rejoining my faithful guides. We

sailed about 4 p.m., and after passing beyond the shelter of S. Maria Island came into a heavy sea. But before noon next day we were anchored once more in calm water off Corral, the little port at the mouth of the estuary up which lies the flourishing modern town Valdivia.

## CHAPTER V.

### THE SOUTHERN ANDES : AN OROGRAPHICAL SKETCH.

**M**UCH ignorance still prevails about the orography of the great western chains of South America which traverse the continent from Panama to Cape Horn. By mere chance, several years ago, my interest was attracted to their southern portion, but I found it quite impossible to attain any kind of general knowledge about its character, its anatomy, its glaciation, or the accessibility of its various parts. The Chilean and Argentine Governments, in consequence of the dispute about their common frontier, have sent several expeditions up to the edges, and sometimes even into the heart of the mountains in recent years; but the results of these expeditions have only been partially published, and in a form not very accessible to English students. Now, however, this mass of material is being made available, and I owe chiefly to the instruction of Dr. Moreno and to a paper read before the Royal Geographical Society by Dr. Hans Steffen [the information sketched in the present chapter.

For some distance north of latitude  $32^{\circ}$  S. the main range does not rise to any notable altitude above the level of the elevated region on which it

stands, but from  $32^{\circ}$  to  $35^{\circ}$  S. there are a series of very high mountains, of which Aconcagua is the chief. The northernmost peak of the group is Mercedario (22,300 feet or more), a great snow mountain. After several lower but yet big peaks comes Aconcagua (23,392 feet),\* and then Tupungato (22,408 feet), the only two important peaks in the group that have been climbed. South of Tupungato are the Bravard (19,619 feet), San Jose (19,849 feet), and a nameless snow peak (18,537 feet), and finally Maipu (17,556 feet), which was climbed by Dr. Güssfeldt in 1883. Between them are other peaks of considerable altitude, and passes about 13,000 feet in height. At the Maipu Pass (11,433 feet) the high range comes to an end. All the high peaks are of volcanic formation, and those to the south mostly maintain the rounded and, to a mountaineer, relatively uninteresting volcanic form. But from Mercedario to Tupungato the mountains are precipitous and craggy, decked with great glaciers, and with avalanche slopes gouged out by the sun into *nieves penitentes*. It is probably easiest, in a general sense, to approach this group from the Chilean side, excepting, of course, the mountains near the main trans-Andean route. The base of operations, at any rate, should be Chile.

The next great division of the range is defined

\* The altitudes given in this chapter are the latest of the Argentine Government survey. Mr. FitzGerald's careful measurement of Aconcagua made it 23,100 feet high.

by the Maipu Pass on the north, and the Las Damas Pass (9,514 feet) on the south. Its principal heights are the Bayo (16,370 feet) and Castillo (16,535 feet) peaks, there being several other mountains of from 13,000 feet to 16,000 feet scattered along, with passes of 12,000 feet and upwards. There are several parallel ridges, and the orography is rather complicated. The whole region is capped by volcanic deposits, but most of the separate volcanoes here stand on the west, instead of as further north the east, side of the main chain. Summits appear to be of more broken form, with very splintered crests. Glaciers are inconsiderable in number and dimensions. Chile is the better base for the exploration of this district, though the west is the bad-weather side of the range. From Valdivia to the Straits of Magellan the Pacific slope is terribly rainy, the maximum fall probably taking place about latitude  $44^{\circ}$  S. The wide and easy Las Damas Pass has been suggested as a convenient route for a trans-continental line of railway connecting the Rio Colorado and Rio Grande Valleys with the Chilean province of Colchagua. There is little doubt that it will be constructed some day.

From Las Damas Pass to Lake La Laja, or rather to the Copahue volcano (9,787 feet), in the latitude of Los Angeles, a little south of Concepcion, is the next convenient division of the range, which is still a complicated mountain area of many ridges.



Few of the peaks rise above 10,000 feet. An interesting group, well worthy, I am told, of careful exploration, is formed by Mounts Planchon (12,762 feet), Azufre (12,382 feet), and Peteroa (13,297 feet), north of the Valle Grande Pass (7,490 feet); whilst the splendid Mount Campanario (13,140 feet), a tower of jurassic rock with a volcanic cap, must not be forgotten, nor the fine, somewhat isolated, snowy Longavi, situated to the west of the main chain, though only 10,430 feet. A solitary exception, standing out alone to the east of the chain, is the Domuyo volcano (13,983 feet), in latitude  $36^{\circ} 40' S$ . Passes about 8,000 feet high are very numerous across this part of the chain. Owing to the greater rainfall on the west, the rivers falling into the Pacific have eaten their way back into the soft jurassic beds, so that the watershed now lies some way to the east of the line of big peaks. Here also isolated volcanoes stand at intervals on the west.

At Mount Copahue the range bifurcates, the western branch being presently cut through by the Bio-bio river, which has eaten its way back and robbed the head-waters of a branch of the River Limay. Originally what is now the upper valley of the Bio-bio poured its waters southward over the present Arco Pass and down the Alumine and Collon Cura Valleys into the Rio Limay. The east range comes to an end near latitude  $39^{\circ} S$ . The district may be described as a granitic plateau,

flanked on the west by volcanoes, and on the east by jurassic and cretaceous formations. It is in this division of the range that the dense forest, nourished by the continual precipitation of moisture from the damp south-western air current, begins to clothe the Pacific side of the range, making the approach to it exceedingly difficult, so that from about latitude  $38^{\circ}$  S. the base of exploration shifts from the Chilean to the Patagonian side. The valleys and plains to the east, all the way from Copahue to the Straits of Magellan, form an admirable base for a mountain explorer. Guanaco, ostrich, and other game is plentiful. Estancias belonging to Argentine, American, Welsh, German, and English colonists are becoming more numerous every year. The scattered Indians are good people ; the climate is delightful for open-air life. In fact, a mountain explorer could hardly imagine a more agreeable field for the exercise of his energies. An interesting route of approach from Central Chile is by the valley of the Bio-bio river, the Arco Pass, and the Alumine, Colon Cura, and Limay rivers to Lake Nahuel Huapi. But from Port Montt a quicker and far more beautiful route leads by road to Lake Llanquihue, thence by steamer to its eastern end ; whence a road leads eastward in two hours' journey to Lake Todos los Santos, with another steamer. A short voyage along this beautiful lake to its north-eastern extremity lands the traveller at a German hotel, an excellent climbing centre.

Thence a track leads eastward amidst magnificent scenery along the north base of Mount Tronador (11,155 feet), and over a low pass to Puerto Blest, on Lake Nahuel Huapi. Tronador is described as a stately structure, crowned by three outstanding summits, and draped with half a dozen fine and steep glaciers. It appears in photographs a most attractive peak. From Copahue southward, the average height of the mountains is about 9,000 feet, though many rise above that level, such as the Villa Rica (9,393 feet), Quetru Pillan (7,782 feet), and Lanin (12,382 feet) volcanoes. The last was climbed by Senor Hauthal of the La Plata Museum, who photographed the panorama from the summit. The mountains, topped with lava, are splintered in character and decked with glaciers. Now begins on the east side of the range a long series of lakes, many of them formed by moraine dams, which are so characteristic of the western margin of Patagonia.

The range from Mount Tronador to about 46° S. may be described as consisting of Swiss-like mountains, with glaciers ever more numerous and larger as they stand further south. The peaks do not average above 8,000 feet, but the towering Mount Minchinmáhuída, overlooking the Corcovado Gulf, is stated to have an altitude of 7,907 feet, and Mount San Valentin rises to 12,716 feet, not far from Lake Buenos Aires. The range in all its width is cut right through by the Rio Huahum

(latitude  $40^{\circ}$  S.), and thenceforward to the south by many other streams emptying into the Pacific. These rivers in process of time have eaten their way back and robbed the head-waters of the less amply rain-fed Patagonian rivers, or obtained access to lakes originally drained eastward. Three chief centres for the exploration of this part of the Cordillera are Lake Nahuel Huapi, the Valley of the 16th October, and Lake Buenos Aires. On both lakes are steam launches, and about all three centres are fairly numerous settlements of civilised men, whilst the scenery is everywhere superb, and the weather, on the east side of the range at any rate, much the same as we are accustomed to in the Alps. Supplies are easily obtained, and there is plenty of game to fall back upon if other sources chance to fail. A good description of all the eastern side of this part of the range will be found in Dr. F. P. Moreno's "Notes Préliminaires sur une Excursion aux Territoires du Neuquen, Rio Negro, Chubut, et Santa Cruz." (La Plata, 1897. 8vo.)

South of Mount San Clemente, between it and Baker Channel (Calen inlet), which enters the Gulf of Peñas at the mouth of Messier Channel after completely penetrating the Cordillera, there stands a great unexplored glacier mass, eighty miles long by thirty wide, with Mount San Valentin rising in the midst of it. This elevated ice-sheet is only broken across by one deep depression, the un-

explored valley of the River Esploradores. On the east the glaciers descend towards Lake Buenos Aires (an excellent base for their exploration but for the density of the low forest level) and the Rio Baker; but it is on the west side that they are most remarkably developed. There they actually descend into the Gulf of Peñas and the head of the wonderful Moraleda Channel. This channel was formerly continuous with the Gulf of Peñas, but a moraine deposit has now formed the low Ofqui isthmus across it, which unfortunately unites the Taitao land mass to the main, and renders it a peninsula instead of an island. But for the existence of this isthmus (so narrow that canoes can easily be dragged across it) there would be a continuous inland sea channel from Port Montt, at the head of the Corcovado Gulf, to the Straits of Magellan.

Perhaps the most interesting expedition that remains to be made in South America is this. Start in a boat from Port Montt with a party of the excellent Chilotes—men of Chiloë and Reloncavi, who are good boatmen and porters—and sail to the Lago San Rafael, at the southern extremity of Moraleda Channel, through superb scenery. This lake is a wonderful spot; a great glacier actually debouches in it, and there are others close at hand. "Nothing grander can be conceived," writes Dr. Steffan, "than the sight enjoyed by the eyes of the explorer in these places; nothing more striking than the contrast offered by the blue-white colour

of the icy streams protruding from large openings of the Cordillera with the sombre hue of the rocks and cracks of the latter, the ashy green of the lake, and the deep green frame of the surrounding forests. The ice blocks that become detached at every moment from the front of the San Rafael Glacier float on the lake, and are transported through its river outlet to the neighbouring estuary." From this centre it would be easy to explore the west side of the San Valentin range. That work accomplished, and a suitable pass found, the boats would be sent back to Port Montt, and a crossing boldly made to Lake Buenos Aires, the base for the exploration of the east side of the mountains.

From Baker Channel southward the great snow-fields succeed one another in long procession, many of them resembling the Svartisen Glacier of Norway. The principal peaks south of San Valentin are San Lorenzo or Mount Cochrane (12,081 feet), in latitude  $47^{\circ} 40'$ ; Mount Fitzroy (11,089 feet), a peak of remarkably precipitous form; Mount Agassiz (10,433 feet); Mount Stokes (8,860 feet), in latitude  $50^{\circ} 50'$ ; and Mount Geikie (9,800 feet), northwest of Last Hope Inlet. The farther south one goes the more does the bad weather from the west reach over the eastern slopes and ridges, but the glacial phenomena correspondingly increase in magnificence. The mountains at the head of the three great lakes, San Martin, Viedma, and Argentino,

are said to be particularly fine ; magnificent glaciers descend into all three lakes, and beautify their waters with numerous small white icebergs. There is a great glacier-pass over a considerable ice-sheet leading from Falcon Inlet of Eyre Sound to Lake Viedma, and in general it may be said that glacier tongues descend in or close to all the chief inlets that branch from Smyth Channel into the continent. Even more magnificent is the scenery of the labyrinth of fiords leading from Smyth Channel to Last Hope Inlet, where the cliffs are precipitous, the summits of the peaks generally buried in a dark roof of cloud, which sheds a mantle of majestic gloom over the deeply lying channels of the sea. At the very head of Last Hope Inlet stands Mount Balmaceda. The snow-field resting in its lap pours down a splendid ice-fall to the waters. Last Hope Inlet can be reached overland from Sandy Point by four days' riding on the grassy pampas, and four days more will carry the traveller thence to Lake Argentino, where the weather begins to be a little better than farther south, and a season of excellent mountain exploration may be obtained. Both Lake Argentino and Lake Viedma are accessible in three days' hard riding from Santa Cruz. Seeing that Sandy Point is in direct communication with England by several lines of steamers, and that it is a town where horses can be bought, men hired, and stores of all sorts obtained, it is not improbable that these mountains



LAKE ARGENTINO.

To face p. 134.





may attract some explorer before many years are past. To the geologist they are exceptionally interesting, not only for the extraordinary development of tertiary beds rich in fossils, and the cave remains of recently extinct mammals, but also for the extent and puzzling intricacy of the moraine phenomena. At the time of glacial extension the whole of this southern range was smothered in an enormous accumulation of ice, which completely buried out of sight the lower ranges to the west. It is the moraine phenomena of the easterly extension of these glaciers at their various stages of retreat that are specially deserving of careful study.

## CHAPTER VI.

### FROM VALDIVIA THROUGH SMYTH CHANNEL TO MAGELLAN STRAIT.

**I**N hopes of seeing something of the west side of the ranges briefly described in the preceding chapter, I went to Santiago and Concepcion. The reader knows how poor a return the bad weather granted to my enterprise. When we anchored off Corral the Cordillera was far away, and mountains for the time were not in evidence. If there had been any near at hand we could not have seen them, for rain poured down in such unceasing torrents that it was all we could do to discover the neighbouring shore. Some energetic people transhipped into a small local steamer, and went to Valdivia for the night. In fine weather this is a beautiful trip, but on this day they saw nothing. Valdivia itself is an entirely modern corrugated-iron town, mainly inhabited by Germans devoted to the brewing of very good beer. Other industries are springing up, and the prosperity of the place continually increases. Of native Chileans Valdivia contains few; they are mostly officials appointed by the Government. Next morning the weather was beautiful. All the clouds had cleared away; the sun shone brightly, and the pretty

wooded hills that surrounded Corral were sparkling with wet. Poor Pellissier was now too ill to stand, but Maquignaz and I took the gun and went ashore to visit a waterfall reported to be near at hand.

The village and its inn were clean and very Teutonic. The primeval forest comes up to the gardens of the cottages, and the only paths in it consist of mere tracks trodden in the abundant vegetation, and hardly more than kept open by the small amount of human traffic which penetrates only for a very short distance inland. Yet the place is not of modern foundation, for along its water front are a row of very picturesque and moss-grown fortifications said to date from Spanish times, and doubtless very necessary when, between Araucanian Indians and lawless pirates, isolated settlements of industrious folk had hard work to defend life and property. There were masses of purple and white fox-glove in bloom on all sides. We literally brushed our way through them, soon becoming saturated from the thigh downwards as we walked. After seeing the sights, we struck inland along a stream.

Now for the first time I learnt what the forests of this part of the world are like. They closed in about a quarter of a mile behind the village, opposing an almost impenetrable obstacle to advance. At first we had to walk in the bed of the stream itself, up to our knees in the torrent, pushing aside the branches that overhung and sometimes inter-

laced from bank to bank. Presently faint traces of a woodman's track appeared, leading uphill. We struck off that way, and so came to a clearing littered with rotten chips of wood, through whose sodden mass an aggressive vegetation was thrusting forth. There were signs of the path continuing beyond, so we followed on, but the way was overgrown. Though the line of the track could be traced under foot by feeling rather than by sight, it could only be traversed with much labour. Shrubs and the branches of trees had so tangled themselves across it that it was seldom possible to stand upright, and never to take a single step without previously breaking down two or three branches or grovelling under or scrambling over them. We were forced into the most complicated positions, one leg perhaps raised over an impediment, the body bent aside to avoid a crooked tree trunk, and the head ducked to escape another branch. Our hats were knocked off five times a minute, and the general wetness that pervaded all the foliage soon soused us to the skin. When I was tangled up in a particularly complicated fashion, with both feet on parts of a recumbent tree, a branch between my legs, another across my middle, and one over my shoulder, Maquignaz suddenly called out, "Shoot, shoot! There's a——" I thought he said bird. I struggled to disengage the gun, and craned my head about as well as obstacles permitted, but could see no bird anywhere.

At last, almost overhead, I descried a large wild cat high up on a branch. Just as I saw it the beast dropped like a stone into the matted under-wood a yard or two away, and was hopelessly lost to view.

Encouraged by the sight of wild life, we scrambled on. The path ceased, and we were in untrodden wood. The foot hardly ever trod upon soil, but only on rotten timber, into which it sometimes sank half-way up the leg. Sometimes we slipped waist deep into holes. Such footing as there was could seldom be seen till the rank growth of ferns and other leafy plants, now in the full luxuriance of early summer, was pushed aside. Many of the standing trees were rotten; any branch one selected to tread upon or hold by was sure to break. A shabby kind of moss and other parasitic growths infested the trees, all reeking wet like so much sponge. Creepers wove themselves about. Something was always flapping in our faces or getting into our eyes, whilst the insecure footing frequently caused us to trip up or tumble over sideways in hopeless entanglement. The further we went the worse things became. As there was no sign of our arriving anywhere, and the extreme limit of vision was seldom more than half a dozen yards in any direction, two hours of this kind of work satisfied me for a lifetime. We fought our way back by a different, rather worse, route to the stream, and came right down

it, waterfalls and all, to the village, where we lunched on the local speciality—fresh smoked *pejerrey*, far preferable to herrings.

In the middle of the afternoon anchor was weighed, and we sailed out into the great rolling seas of the Pacific, rain pouring down once more. From Corral to Cape Horn the sea is always rough, or at least restless with a heavy swell. I imagine that few people exist who would regard ocean travel as pleasant in such a region. The misery continued all next day. Only at rare intervals did the mists or rain-storms divide to show, in the far distance, faintly outlined hilltops. Next morning we were off the Tres Montes, which, like all else, were shut out of sight in heavy rain. We now bent south-eastward into the tumultuous Gulf of Peñas, and heaved and floundered across it toward the mouth of the Messier Channel, which everyone eagerly desired to enter to be at rest. The channel is a submerged valley, and its entrance is defended by many a submerged peak, so that the navigation is most difficult and dangerous. We were near all manner of promontories, small islands, and half-tide rocks, but could see little through the fog and rain. Our admirable skipper, relying upon the thoroughness of his experience, steamed slowly ahead. In due time the faint outline of Penguin Island appeared upon the starboard bow. The ship had been brought within a hundred yards of her right position.

Messier Channel was immediately entered. The water became absolutely calm ; the fog disappeared ; rain grew thinner ; the banks were dimly seen on either hand. At five o'clock the anchor was let go in Hale Cove, Orlebar Island, where wooded hills of Scotch dimensions rose all around.

Messier Channel is the name of the northern reach of the long submerged valley, or rather succession of valleys, which flank this part of the continent of South America, and along which we were to steam during the next few days to the Straits of Magellan. It lies between the mainland and the closely packed archipelago of islands fringing the coast. From its entry at the Gulf of Penas to its exit into Magellan Strait, a distance of 360 geographical miles, following the windings of the channel, the open sea is only once visible. Different reaches of it have different names, but hereafter I shall, in accordance with common usage, speak of the whole as Smyth Channel, though that name properly belongs only to the last reach at the south.

There are two other inland passages between a mainland and a continuous, or almost continuous, string of islands which may challenge comparison with Smyth Channel. These are the Alaskan and Norwegian inland steamboat routes. The Alaskan I have not seen, but the consensus of competent opinion agrees that it is inferior in point of scenery to the Norwegian channel, which I have traversed



four times, between Bergen and the North Cape. I shall confine myself, therefore, to a comparison between the Norwegian and Smyth Channel, and I have no hesitation in asserting that the Chilean waterway is, on the whole, less splendid than its northern competitor. The points of similarity and contrast between the two are worth noting. In both the mountains, alike of the mainland and the islands, are similar in character. They are very ancient ranges, formed of the hardest rocks—granite, gneiss, and so forth. They have been exposed through countless ages to the forces of denudation, carved into deep valleys by water action, then rounded and polished up to their very summits by a great ice-sheet, which has now withdrawn from all but the highest elevations. Finally, both have been depressed till the valleys and the bases of the hills are deeply submerged. Both are now rising once again. Thus there is little to choose between the Norwegian and Chilean waterways in the matter of form, except near Magellan Strait, where, as will be seen, some bold and splendid snowy peaks arise; but these belong rather to the Magellan district. If, however, they are to be reckoned as one of the scenic assets of Smyth Channel, they may be set off against the mountains of Lofoten, and to them they must yield the palm of beauty.

In respect of width—of apparent as distinguished from navigable width—Smyth Channel is astonishingly uniform; it is more like a wide river than a

sound. There are a few broad reaches and two notable narrows, but there is none of that frequent change of breadth which gives such variety to the Norwegian passage ; nor are there so many of the far-stretching vistas that excite the expectation or stimulate the memory of the North Cape passenger. To the credit of Smyth Channel, on the other hand, must be reckoned the dense velvet-textured forest mantle that drapes the shoulders and forms the skirts of the hills, covering even the smallest islands and reaching to the very margin of the channel. The trees often actually overhang the water, where the high-water level cuts off the foliage in a sharp horizontal line, so that the branches just touch the surface of the flood, whilst at the ebb a boat can be rowed beneath the thick arboreal roof. It must be admitted that the scenery of Smyth Channel is rather monotonous ; always fine no doubt, but always fine in the same way. The views are composed of the same elements—a calm water highway, wooded islands and shores, waterfalls and cliffs above, and large ice-rounded and bare summits reaching up into a roof of heavy clouds, the whole enveloped in sombre and solemn gloom. It is all impressive enough when you come freshly to it, but as the hours of each day draw slowly along it becomes a little wearisome, so that an effort must be made to fix the attention and not lose the charm of change, because the changes that do take place are within a narrow compass.

Rain seldom ceased to fall for more than a few minutes at a time till night came on, so that no one cared to land on the reeking shore. I paced the deck and observed the glaciated mountain forms and the well-marked traces of an ancient corrie-glacier that once emptied by an icefall on to the gentler slopes below. The forest belt did not appear to be thick for more than 2,000 feet. Bare spaces, covered with stunted trees, spread higher. Above them came rounded surfaces of naked rock. At the other side of Orlebar Island is the narrow entrance to far ramifying Calen Inlet, the biggest Patagonian fiord, which cuts right back through the Cordillera almost to its eastern foothills. But nothing would lead a voyager down Messier Channel to expect the existence of this recondite labyrinth, so numerous are the branch waterways, short and long, that turn off on either hand. We sailed next morning at a comfortably late hour in continuing rain. But our ill luck soon ended. The weather cleared, and remained fine almost to Magellan Strait. The ship's officers, who spend their lives making this voyage, agreed that none of them had ever experienced in Smyth Channel so long a spell of relatively clear weather as was granted to us.

Sixty miles south of Hale Cove came the English Narrows, the most dangerous passage of the channel. They can only be navigated with safety at slack water, and this fact determined the

hour of our morning start. Any vessel coming in the opposite direction would be similarly timed to pass the narrows at the same hour. As a matter of fact another steamer of the Cosmos Line was due this day. It was essential that the two boats should not meet at the critical corner, where there is little enough room for one to manœuvre. The twisting of the channel about the intrusive islands renders it impossible to see far ahead. As we approached the place the whistle was kept going, rousing the echoes among the surrounding hills. At the most dangerous point sunken rocks lie in wait for a ship that swerves, however slightly, from the true track. The vessel must be capable of making sharp turns, and be skilfully handled, if she is to pass safely on her way. Fortunately there was no fog, and we could enjoy the scenery, which here becomes grand.

The foreground of wooded islands, wooded cliffs, with snow-slopes and glaciers aloft and peaks of fine form over all, especially the chisel-like point, about 3,000 feet high, overlooking Indian Reach, formed a series of pictures which the twisting of the channel brought in succession before the eye. A noble perspective of snowy peaks along the west side of Indian Reach, beheld as we issued from the narrows, is one of the scenes that has best photographed itself upon my memory. As this straight waterway opened into view the expected steamer was revealed a mile or two away. She presently

passed so close alongside that the ships' companies, all acquaintances one of another, could shout greetings, messages, and inquiries from ship to ship. There was much dipping of flags and blowing of whistles as we parted in opposite directions.

An hour or two later we bent to the south-eastward down Grappler Reach, which leads to the mouth of Eyre Sound. In three or four miles we came opposite the mouth of the narrow cove named Port Grappler, which runs a little way northward into Exmouth Promontory and forms one of the best protected anchorages of the whole channel. A wooded island stands off the mouth of the cove, and the first thing a voyager observes on it is a white board, hideously obtrusive in the wild solitude of Nature, bearing in letters of heroic size the words :

“COLONEL J. T. NORTH.”

I could not but mentally contrast this flaming advertisement, intended to force the fact of a particular individual's visit upon the observation of after-comers, with the modest and materially traceless passage of Darwin, who went through this same region with observant eyes, winning from it precious truths for the enlightenment of mankind, and left for ever upon it, like a sunny glow, the immortal memory of his presence.

Within the cove, over against the anchorage, were many small boards nailed to trees by the water's edge, recording the visits of different ships

and world-encircling yachts. Similar records are found near all the anchorages in Smyth Channel. I rowed away at once up the cove, for it was early in the afternoon. Presently all the passengers landed on a neighbouring promontory, and amused themselves by lighting a big fire. There were some graves near at hand, pathetic monuments of dead sailors, recalling those on the tragic shores of Spitsbergen. The cove is an inlet about three miles deep; its banks are covered with dense forest, except at the mouths of streams or where there are boggy flats unfavourable to the growth of trees. Near the mouth of a stream, about half way up the east bank, was a tiny flat covered with rank grass, where I landed and found, a yard or two within the forest, the frame of an abandoned Indian booth. It was formed of withes bent over into a rough dome shape. Some pine branches still hung about it. The booths when in use are covered with skins as well as branches. At the best they must form a miserable shelter in this wet climate. The situation might have been chosen for its picturesqueness. Trees overarched the exit of the babbling brook from the forest; the booth was likewise overshadowed, and the little grassy place was foreground to the cove and the opposite hills.

We saw no Indians at any time in or about Smyth Channel, but that was not because there are none. Such as exist are popularly known as

Canoe Indians ; their real name, if I am correctly informed, is Alaculof. They live in families, a very few together, and are always on the move. If they were to stay in one place for more than a night or two, the Devil, they say, would put his head out of the ground and bite them where they sit. The fact, of course, is that the constant search for food keeps them continually wandering. Their weapons are bows and arrows, pointed with stone or bottle-glass, skilfully chipped on a prehistoric model. Shell fish is their staple food. Their resting-places are marked by piles of shells, like the ancient kitchen-middens of Denmark. Such a refuse heap lay close beside this booth, and saluted the nose with its foul effluvium. These Indians also fish, and kill geese, otters, foxes, and whatever animals they come across. Where they go ashore they pull up their canoes and build a booth. Fragments of a broken canoe were lying at this spot. The position of their encampments when in occupation is generally indicated by a column of smoke arising from the damp wood of which they make their fires. It was probably from these fires that Tierra del Fuego was named on its discovery, in days when the Indian population was much more numerous than it is now. Most of the Canoe Indians are treacherous, and will kill any white man they can overpower.

To wander far alone in the forest region is not advisable, even though a man be armed, for the

Indians are experts both in silently travelling through the wood and in hiding themselves. Moreover, their knowledge enables them to foresee the line a traveller must follow. They lie in ambush beside it, and shoot their arrows into him from close quarters when he least expects the proximity of a foe. Many murders of this sort have been recorded, even in recent years. An adventurous American voyager, Captain Joshua Slocum,\* who passed through Magellan Strait and Cockburn Channel alone in a little boat on his way round the world, was attacked by a small fleet of canoes. Being well armed, he was able to drive his foes away, not, I believe, without some slaughter. Indians sometimes come to Sandy Point and other settlements to exchange otter skins and their primitive manufactures of bows, arrows, model canoes, and the like for tobacco or old clothes. They are said to be astute bargainers, by no means devoid of intelligence, but all attempts to raise them in the scale of civilisation have failed. As they cannot fit themselves into the fabric of the civilised world they have become a rapidly diminishing and doomed race. Only anthropologists will regret them.

Embarking again, we rowed on up the cove, and presently sighted six geese standing on the bank. Approaching within what seemed easy range and taking careful aim, I fired and missed

\* "Century Magazine," October, 1899.



the lot, to the scorn and derision of my boatmen. The shot fell harmlessly into the water, the distance having been egregiously under estimated. The birds flew away with a loud cackling, and frightened all the other geese in the neighbourhood, so that I never had another chance. I do not know what kind of geese they were, but certainly they were not the same as the geese pointed out to me in St. James's Park, London, by Mr. Trevor-Battye, which he said were known as Magellanic geese.

Towards the head of the cove the water shoaled, so that we came with difficulty to land. One of the sailors ultimately carried me ashore on his back to a gravelly spit, giving access to a large boggy area, raised eight or ten feet above the level of the water. It was cut through by deep muddy channels too soft to wade across. Long grass grew upon it, and there were masses of deep soft moss, into which one trod as into snow. Following inland, the ground became more and more lumpy and difficult, with low shrubs and barberry bushes and scattered unhealthy-looking trees. Gradually the forest gathered together. The ground was smothered beneath tangled masses of decayed fallen timber, submerged in moss and other rank vegetation; the trees interlaced their branches, and further advance became painful, except in the beds of flowing streams.

The twittering and singing of the birds in this wood were very charming. From the nature of the

place they were not easy to see ; but evidently there must have been plenty of food for them. All the birds I saw, except the geese and a few terns and ducks, were small dicky-birds. The geese build in the swamps, and there were probably plenty of nests about, though I only saw one, and that was on a patch of bog, islanded by untraversable muddy ditches. In all we must have seen over a hundred geese in this cove, a small number compared with the anserine population of any similar area of Spitsbergen coast. Yet apparently the amount of food for geese provided by Nature in this region is unlimited, and even if foxes deplete the breeding-grounds along the shores, there are plenty of small islands which would be safe from their ravages. Nothing struck me more forcibly along the whole of Smyth and the Fuegian Channels than their relative poverty in bird life. A few albatrosses followed the ship, and some gulls in Magellan Strait, but there were no bird-rocks or great bird colonies, such as the Norwegian inland passage has to show. The reason must be that birds have had some persistent and powerful enemy in this region throughout a very long period of time, and he can only have been the Canoe Indian, who, having always to carry on a desperate struggle for existence, especially in former days when his numbers were much greater, no doubt devoured all the eggs he could find, thus accomplishing in prehistoric times the destruction of bird life which

the Norwegian fishermen are now rapidly accomplishing on the shores of Spitsbergen. Numerous though birds are now in that northern breeding-place, there are not a tithe, nor perhaps even a hundredth, of the number which astonished the first visitors two or three centuries ago.

Returning to the boat, and with difficulty getting her afloat, we rowed back down the other side of the cove, landing once or twice as fancy dictated. We returned to the ship about nightfall, which, in this relatively high latitude (corresponding approximately with that of Edinburgh) and so near to Midsummer Day, comes very late. By 2.30 next morning it was light enough to sail. An hour later we were off Bold Head, the eastern point of Saumarez Island, and the view was the most impressive I saw in Smyth Channel. Heaven and earth were filled and enveloped by a solemn grey twilight, coming one knew not whence. The colouring was everywhere low in tone—sage-green hillsides; water like dull lead or polished steel as breezes touched or left it; cliffs brown and frowning; sky full of dark clouds, whirled into wild shapes by eddying winds; and the great headland standing defiantly erect. Then, passing apparently at a stone's throw from the foot of the majestic cliff, I looked back along the silent water-valley stretching to blanched snow hills and gloomy recesses, as it were a highway and particular reserve for ghosts and ghouls and all the uncanny tribes of

fear. Opposite, the channel opened that leads into Eyre Sound, a long fiord with many branches, once, and possibly still, a great resort of seals. Its largest tributary, Falcon Inlet, stretches back to the foot of a great glacier leading up to a wide *névé* pass, whence another big glacier flows down to Lake Viedma. How glad I should have been to quit the ship at this point and strike inland to the world of ice! But it could not be.

On we went into the broad reach known as Wide Channel, and so came presently and for the first time among blocks of floating ice. Glaciers descend into the water at the head of several of the lateral fiords, but none of their snouts are seen from the main channel. Indeed, it is only at this point that floating ice is certainly to be found. The exact situation of the glacier that yields it was not indicated to me. Here it is the custom of ships navigating Smyth Channel to stop and fill their ice-chambers. We accordingly lowered a boat, which lassoed a block and towed it alongside. It was a large lump weighing several tons, and had to be quarried up and hauled on board piecemeal. The floating ice was small from an Arctic point of view, none of the fragments being more than a few yards in diameter, but beautifully pure and white on the surface, blue in the fractures and submerged parts.

The scenery was now tame till we came to where Trinidad Channel opened to the west, with numbers

of small islands dotted about the wide waterway. Two or three hours further on comes another wide opening to the sea, from which we bent away south-eastward to the Guia Narrows, an easier and less remarkable contraction of the channel than the English Narrows, but notable for its great display of ice-rounded rock surfaces. Beyond them Peel Inlet diverged to the eastward, displaying a vast expanse of snow-field at its head, thirty miles away, undulating up to a wide, easy pass apparently just south of Mount Stokes; but that peak, which stands a little way south of Lake Argentino, was not itself in sight. Five miles further on came Puerto Bueno, a land-locked cove with good anchorage, where we brought up for the night.

I rowed ashore at once, landing at 4 p.m., with nearly six hours' daylight before me, with intent to climb aloft and win as wide-reaching a view as possible, for the scenery of water channels and lakes is far better when looked down upon than from below. It always amuses me to find people imagining that they have seen the Rhine or the Swiss and Italian Lakes who have merely traversed them in steamboats, whereas the charm of all those regions is their countless hill-side and hill-top points of view, whence the eye embraces the wide-spreading or far-reaching water surface, and contrasts its bright texture and smooth sky-reflecting mirror with the rich colouring and varied forms of the surrounding hills. Moreover, when

you look down, and consequently see far, there is a special and peculiar attraction about any long water channel winding away. It suggests more powerfully than any other natural phenomenon the sense of the Beyond, the tantalising mystery of what is round the corner, which is, in fact, the stimulating element that gives to exploration its charm. The fascination of a view often consists not in what is seen; but in what, being hidden, is yet suggested. The glory of an ocean prospect is in the sense it gives of immensity, of stretching away and yet away beyond the reach even of imagination; in proportion as the area seen is large, so is the mind stimulated to conceive the vastness of the unseen. Hence ocean views also are far more impressive when beheld from a cliff's top than from a steamer's deck.

I leapt ashore where a brook emptied itself by a pretty waterfall into the bay. It was overarched with trees, and all the ground about was so thick with the matted growth of things that advance would have been difficult but for the existence of a faintly marked Indians' track leading inland along the margin of a stream. Ice-smoothed rocks came near the surface everywhere, and the soil was often too thin for trees to grow. But where there were no trees there was bog, and the path, instead of striking up over it, led along the flat. It dodged in and out and came to an end at the margin of a beautiful lake which the stream drains.

The forest trees thronged down upon the edge of the water, so that further progress this way was impossible. Turning up hill, I fought a way through the trees, and came presently to an almost vertical bank twenty feet high, a more ancient level of the lake. This bank was covered with moss many inches thick, and stopped my progress for some time. If I climbed a few feet up it, the moss and earth would give way and drop me to the foot again. I tried climbing the trees beside it, but the branches always broke when I attempted to traverse them as a bridge. I was finally compelled to use the ice-axe, which I had fortunately brought for a walking-stick, to scrape away the moss and hew out a regular staircase. This was the last difficulty.

Above was an open bog, hard enough to bear, interspersed in the hollows of smooth sweeping undulations of ice-scratched rock, leading up to one little lake above another, a staircase of tarns, each marking the foot of one of the icefalls of the glacier that formerly covered the whole slope. Up and up I went, leaving the forest far below and gaining an ever more wide extent of view, where islands and channels, wide stretches of water, and range after range of mountains met the vision on all sides. It was a lovely scene, not doubtless in any way remarkable for the region, but such as might be obtained from countless neighbouring elevations. Returning after a long scramble to the shore at

another point, I shouted for a boat, and sat down listening to the peculiar cry of a bright coloured bird, the only visible inhabitant of these solitudes. I noticed with surprise seashells caught twenty feet up in the branches of trees overhanging the water. Similar shells were on the grass below, so I suppose they are merely driven up by the breaking waves in occasional storms, though rough water must always be rare in these land-locked places.

The *Tanis* had plenty of time to spare, for she must wait some days at Sandy Point for the European mail, which it was her business to carry to the Falkland Islands. The manager of the line at Valparaiso had promised that I should have frequent opportunities for going ashore, and that the steamer should stop at as many anchorages as possible. The captain was perfectly willing to spend another night or two between Puerto Bueno and Sandy Point. Unfortunately, Pellissier's condition made it necessary to hasten on, it being now evident that an operation must be performed on him. It was, of course, advisable to find accommodation for him in some comfortable hotel for that purpose. The *Tanis* carried an excellent young German surgeon—Dr. Bode—who promised to attend our patient at Sandy Point until the ship sailed, by which time he thought Pellissier would be on the way to recovery.

Laden with a big Christmas-tree, we returned



on board. The ship sailed at an early hour next morning. I did not come on deck till we were in Collingwood Channel, and the rugged and snow-capped Cordillera of Sarmiento was in view. It was a splendid sight beneath the heavy roof of cloud—the last fine view that we had, for now the clouds descended and shrouded all the peaks. This was the more unfortunate because we presently passed the massive Mount Burney, which, though only 5,800 feet high, possesses all possible mountain majesty. Its great glaciers poured down between fine rock ridges out of a roof of clouds. The imagination was free to prolong them upward to whatever aspiring summits it pleased.

Here we entered the last reach, to which alone the name Smyth Channel properly belongs. Rain began to fall and wind to blow. The sea opened out ahead with low Fairway Island near at hand. A French cruiser was just entering Smyth Channel as we came out. Her northward passage would be less agreeable than our passage had been, for a continual current of air blows down the channel from north to south, making that the more pleasant direction in which to steam. In Magellan Strait we came among heavy ocean rollers pouring in from the west. For an hour we tumbled amongst them, seas splashing over and rain falling. For one clear moment only we caught sight of Cape Pillar, the storm-torn promontory fronting

the Pacific. Then, bending away round Tamar Island to the north-east, the *Tanis* rolled no more.

Seldom does a voyager find the west end of Magellan Strait clear of fog and cloud. There the wind blows unceasingly, driving before it the waters that are above and beneath. But as we advanced eastward conditions improved, and in an hour or two the water was again smooth and the clouds were lifted above the hill-tops. Desolation Island was on our right hand, and the desolate mainland on our left. The scenery was grander beyond all question than anywhere in Smyth Channel, though the latter, perhaps, enjoys a greater prestige; places rarely visited being often over-praised by those who have seen them at the expense of finer but more frequented scenery. I doubt whether any steamer route, unless it be the Inland Sea of Japan, commands more impressive views than the western arm of Magellan Strait. This is partly due to its width, which, while narrow enough to bring the mountains near on either hand, is yet broad enough to enable their summits to be well seen above their shoulders from the waterway.

The interior of Desolation Island, occupied by rounded white hill-tops and undulating snow-fields,\* flanked along the strait by bold points of

\* See photo of Port Churruca in the *Challenger* narrative, vol. i., pl. 34.

dark rock, was enveloped in grey cloud shadows and swept with rain besoms. From time to time, as we steamed along, we could look far inland up dreary valleys to wide snow deserts and ice-mantled peaks. Channels, darkened by shadows and reflections to almost utter blackness, stretched away on one side or the other to solitudes haunted only by the last miserable representatives of a doomed race.

Along the south front of Cordova Peninsula is a snowy range, stretching eastward as far as Good Luck Bay, and pouring down many a white cascade of ice, the blueness of whose seracs is visible afar. Opposite is a yet finer range along Santa Ines Island, with bigger snow peaks and larger glaciers, specially fine being the mountain at the head of Snow Sound, which remained in view almost as far as Cape Froward. This ice-sheet appears to descend south-eastwards into Smyth Harbour and Icy Sound, branches of the Barbara Channel. Icy Sound was visited in 1828.\* "Three miles within this sound," say the explorers, "the rocky shore becomes more precipitous, and at two miles further, where the width across was not more than 150 yards, the rocks rise perpendicularly on each side to the height of 700 or 800 feet. Beyond this remarkable part the channel opens out to a basin about half a mile in diameter, bounded by a sloping glacier, from which

\* "*Beagle Voyage*," vol. i., p. 140:

immense masses of ice broke off frequently, and falling with a noise like the discharge of a ship's broadside threw up the water with terrific violence. As we entered the basin we were startled by a sudden roar, occasioned by the fall of one of these avalanches, followed by echoes which reverberated round the basin and among the mountains."

Save for minor changes of mass and perspective, the view from the steamer remained the same till the southernmost part of the continent had been passed—steel-grey water in front, purple bases and buttresses to the hills, dead-white snow above, and leaden clouds over all. Grave with the solemn thoughts such scenery must impose upon the lightest heart, I was pacing the deck when the steward summoned me to the saloon. I found our small company of passengers and the officers of the ship, characteristically kind-hearted Germans every one, assembled in the vestibule. My arrival made the number complete. The doors were opened by two fair-haired little children, the ship's delight, and lo! a brightly illuminated Christmas-tree and Father Christmas with his gifts! The children sang "O, Tannenbaum!" and danced about with delight. There were little presents for everybody from everybody, wherein the good mother had acted as secret intermediary. A bottle of champagne was opened, and all was *feierlich* and *lüstig* as could be, whilst the skies wept and the wind raged without, unnoticed.

When I returned on deck Cape Froward was in sight; we passed it at midnight, when Christmas Eve was giving place to Christmas Day. Here the strait bends away at right angles to the northward, and the scenery grows tame, the mountains sinking beneath the forest level. Just as in crossing the continent further north from west to east a traveller descends from the Cordilleras through foothills to the flat pampas, so from the waterway the same transition is beheld.

Almost at the edge of the pampa on the margin of the strait, about fifty-five miles north of Cape Froward, stands the growing town and only port of these parts, Sandy Point (Punta Arenas), latitude  $53^{\circ} 10'$  S. The original Spanish settlement in the strait was at the bay thirty miles south of Sandy Point, named Port Famine, whereof there will be more to say presently. It was ultimately abandoned and allowed to sink into ruin. In 1843 the Chilean Government made a penal settlement on this spot. In 1849 they moved it to Sandy Point, owing to the discovery of coal, of poor quality, in that neighbourhood. Up to 1877 it remained only a penal settlement, but about then a few enterprising settlers, with little money but plenty of energy, obtained grants of land thereabouts to try their luck in sheep-farming. In order to attract more settlers, Sandy Point was made a free port in 1880, and its de-

velopment went steadily forward. Sheep-farming prospered ; the number of farms continually increased, and Sandy Point was their place of export and supply. The Chilean Government favoured local enterprise in every way. Sandy Point is now the seat of the Governor of the Magellanes territory, and a Chilean naval station. By treaty with Argentina it was agreed that the whole of the straits belonged to Chile, and that they are not to be fortified. Sandy Point is therefore an open port, and will probably remain a free port for some few years to come.

The number of inhabitants has increased to over 10,000 ; streets of good-sized houses, built of wood and corrugated iron, are springing up. The land is laid out in building lots ready for further extension in all directions. The climate is found to be salubrious, and not nearly so wet as used to be thought. Agriculture cannot be carried on in the Magellanes territory, for the sunshine in summer does not suffice to ripen wheat or other cereals, neither do fruit trees thrive. Potatoes, cabbages, cauliflowers, lettuce, and the like are grown in sheltered places, and hardy annual flowers in the gardens of keen lovers of horticulture ; but gales of wind make gardening difficult. In the long winter months, from May to August, excellent skating may be had ; and this is the only district in all South America where ice can be found for that sport. Sleigh-driving is also a favourite

amusement. The sandy shores of the eastern arm of Magellan Strait, with their fine turf and frequent natural bunkers, seem to have been made by Nature for ideal golf links. At present they are only thus used by the passing officers of English men-of-war.

The anchorage for big steamers is a mile or two out in the open roadstead, and landing is sometimes a matter of difficulty, and always of considerable expense, for the boatmen of Sandy Point value their services highly. Leaving my men and baggage on board, I went ashore in the agent's launch to call on Mr. Meredith, manager of the English Bank and British Vice-Consul, in order to make immediate arrangements for Pellissier's comfort. I had not gone ten yards up the street before the ubiquitous graphophone, which had pursued us everywhere from Panama down, saluted my ears with its nasally obtrusive tones. Mr. Meredith and his wife received me with the utmost kindness. Within half an hour I had found suitable rooms in a small French hotel, and was able to send off a boat for my belongings. Pellissier was separately landed in the *Tanis'* gig, and carefully carried up to his room by German sailors. The next day the operation was successfully performed upon him, and a fortnight later he was practically well, thanks to Dr. Bode's skilful treatment.

In the evening of Christmas Day I was present

at a real Christmas dinner at Mr. Meredith's, where all the young men of his bank were gathered together. Pleasant it was to find home traditions thus maintained in the southernmost settlement in the world.

Perhaps the greatest danger run by a young Englishman who goes in search of fortune to remote foreign cities is the utter loss of the traditions of home-life. Many a young man whom I have encountered has lamented to me the fact that, perhaps for years, he had been entirely cut off from the society of ladies of his own class, whilst living in a town otherwise supplied with the ordinary resources of civilisation. The tendency thus created to adopt lower standards, and to sink into a purely material mode of life, is a great danger.

A Briton's chief asset is his relatively high average standard of honesty and honour. Heads of large commercial houses at home, having branches in different parts of the world, should insist upon their English-employees returning home for at least a few months at intervals of not more than three or four years. Such renewed contact with the home circle is almost essential to the maintenance of the average man's character, a matter of prime importance to an employer. Further, if the married heads of branch houses will open their homes to the young men under their charge, as is too rarely done, such action cannot fail of reward in the mere



efficiency of their staff. It was a delight to look round on this group of young Englishmen at Sandy Point, and to feel that even at the ends of the earth they still had access to the atmosphere of home.

## CHAPTER VII.

### FUEGIA : HISTORICAL AND GEOGRAPHICAL.

THE Fuegian Archipelago continues the main geographical features of the south part of the South American continent. It is only the accident of the depression of the valleys below sea level that forms Magellan Strait and cuts the land mass up into a countless multitude of islands. The Cordilleras of the continent, gradually bending round eastward till their direction is from west to east, form a bulwark against the tempestuous ocean, whilst the northern half of Tierra del Fuego continues the Argentine pampa. Magellan Strait was discovered before the passage round Cape Horn, and was at first believed to be the only channel from the Atlantic to the Pacific. It was explored by a succession of famous voyagers. Space would fail me to recount many of the fascinating tales of maritime adventure that happened in this wild and storm-beaten region, this land of tangled forests, riven rocks, and everlasting snow. It has been the stage of tragedies, mutinies, and sea fights, of maroonings and executions, of shipwrecks, of starved colonies, of murdered missionaries, of deaths from scurvy, hunger, and exposure. The

mountains of this country are yet awaiting exploration. Until recently only the coasts of Fuegia were at all well known, their exploration having been mainly the work of seamen. Mountains useful as landmarks are named and registered on the charts, but only hills on the actual seashore have been climbed.\*

The first party to visit these inhospitable channels was that led by Magellan. They left Seville August 10th, 1519, wintered and mutinied at Port St. Julian, which was not quitted till August 24th, 1520. On October 21st they entered the strait by doubling a cape which they named the Cape of the Eleven Thousand Virgins, now abbreviated into Cape Virgins. The passage of the strait occupied Magellan from October 21st to November 18th, on which day he sailed out into the Pacific Ocean, first of all European navigators. Continuing the voyage for three months without sight of land, living on rats and leather, they at last discovered the Philippine Islands, where Magellan was killed. Only one of the ships returned to Spain (in 1522), under the command of one of the mutineers of Port St. Julian, who thus completed the first circumnavigation of the globe.

Other Spanish expeditions followed Magellan's. In 1578 Sir Francis Drake, after overcoming, like Magellan, a mutiny at St. Julian, passed through

\* For a résumé of the early explorations of this region see *Zeitschrift d. Gesell. für Erdkunde zu Berlin*, ii., 315 et seq.

the strait. Sailing northward, he discovered California, and returned to England in 1580, round the Cape of Good Hope. Drake was followed on behalf of Spain by Sarmiento, a man whose life was one of extraordinary romance and much ill luck. He came a second time to Magellan Strait, to colonise and fortify the passage in order to close it against the ships of rival Powers. Misfortune dogged his steps. Having sailed from Spain in 1581, with twenty-three ships and 4,000 men, he arrived at the mouth of the strait with only five ships. He returned to Rio to refit, and there added three more ships to his reduced number, but when he again reached Cape Virgins, in December 1584, only five ships remained to him. He built a fort near the first narrows, and lost another ship. Three of the remainder escaped away back to Spain. With the fourth he founded Port Famine. He had to repress repeated mutinies. At last one day he was himself blown out to sea in his only remaining ship, and forced to make for Rio. He bravely endeavoured to revictual his little colonies, but contrary winds were too much for him; so he sailed for Spain to seek help, was made prisoner by Raleigh on the way, and carried to England. Queen Elizabeth released him with gifts and sent him home; but he was again captured almost in sight of his destination by other enemies, who kept him two years in prison before his king sent to ransom him. The abandoned colonists, after

frightful privations, perished in a year or two, with the exception of two individuals, who alone escaped to tell the tale of final disaster.

In 1598 the Dutch in their turn appeared on the scene. Sebald de Wert spent nine months trying to get through the straits without success; but De Corde, captain of a companion ship, passed safely into the Pacific. These and many more expeditions were either purely trading adventures or incidents of piracy or of war. By the end of the seventeenth century the Fuegian Archipelago was infested with buccaneers, and many an exciting tale is told of their doings. The discovery of the network of channels and the relatively few good anchorages in them was mainly the work of these men. The first scientific expedition thither was sent from England in 1669, under the command of Sir John Narborough. He it was who commenced a systematic survey and gave to many of the islands the names by which they are now known. Frequent experience of the dangers of the strait led to its almost complete abandonment in the eighteenth century; but the invention of steam brought it again into use, and now the passage of some ocean steamer is an almost daily event.

In the nineteenth century two important expeditions, English and French, explored the Fuegian Archipelago. The English expedition, consisting of the *Adventure* and the *Beagle*, was at work from 1826 to 1836, and is memorable for having been

accompanied by Darwin during a part of the time.\* The French mission explored the southern islands and channels in the years 1882 and 1883. It was undertaken as a part of the international scheme of circumpolar observations.

In the tangle of mountains forming the Fuegian continuation of the Cordilleras the highest and most important range stands on the long western arm of Tierra del Fuego. It has an Indian name, which I have forgotten ; it is called Darwin Range on the map. Mount Sarmiento is its culminating point at the west end, and Mount Darwin at the east. To voyagers entering Magellan Strait from the Atlantic Mount Sarmiento comes in view in fine weather when the second narrows have been passed. Few who have traversed the strait from Sarmiento down have failed to admire this splendid mountain. "At the south-east angle of the Magellan Channel," says Lieutenant Graves,† "stands Mount Sarmiento, the most conspicuous and the most splendid object in these regions. Rising abruptly from the sea to a height of about 7,000 feet, it terminates in two sharp peaks, which seem absolutely in the sky, so lofty does the mountain appear when you are close to its base.

\* The story is told, but not published hitherto, that the lieutenant of the *Beagle* one day said to Darwin, whose natural history collections his ignorance disapproved, "If the captain would go away and leave me in charge of this ship, I'd have you and your filth overboard in five minutes."

† "Voyage of the *Beagle*" (ed. 1890), p. 252, with illustrations.

Two-thirds of the height are covered with snow, and two enormous glaciers descend into the blue waters of the sea beneath. When the sun shines it is a most brilliant and magnificent sight."

Mr. John Ball, the famous mountaineer, describes\* how, when he was near Cape Froward, "the sky partially cleared to the southward, and we were fortunate enough to enjoy one of the most impressive scenes that my memory has recorded. The broad sound that divides Clarence Island from the main island of Tierra del Fuego lay open before us, flanked on either hand by lofty snow-clad summits. In the background, set as in a frame, rose the magnificent peak of Mount Sarmiento, the Matterhorn of this region, springing as it appeared from the shore to a height of 7,000 feet. Sole sovereign of these Antarctic solitudes, I know of no other peak that impresses the mind so deeply with the sense of wonder and awe. As seen from the north the eastern and western faces are almost equally precipitous, and the broad top is jagged by sharp teeth, of which the two outermost, one to the east, the other to the west, present summits of apparently equal height. At a distance of about twenty-five miles the whole mass seemed to be coated with snow and ice, save where some sharp ridges and teeth of black rock stood out against the sky. I remained for some time utterly engrossed by the marvellous spectacle."

\* "Notes of a Naturalist," p. 244.

From the channels and bays of the west end of Beagle Sound the southern face of this range has occasionally been seen in unclouded splendour from end to end, with the double peak of Mount Darwin, about equal in height to Sarmiento, dominating the view, and the great Avalanche Glacier descending to the sea along a valley several leagues in length. "The higher of the Darwin peaks," as described by the French expedition, "has a pointed summit rising out of a plateau above rounded slopes. The northern mountain terminates in a sharp and isolated peak. In fine weather these snowy hills are visible from Ushuaia Bay, and when the sun shines upon their icy tops the sight is marvellous. Light sparkles upon them of every tint from tender pink to pale green. But this splendid panorama is seldom visible; the land to the west is almost always enveloped in fog, and the mountains are hidden behind a dense curtain of cloud."

Popper's map, wherein some attempt has been made to indicate the position of the mountain ranges, places a ridge named Sierra King close to and a little south of Sierra Darwin. A series of glaciers, which fall into or approach the sea in Darwin Sound and the north-west arm of Beagle Channel, drain either the Darwin Peaks themselves or the King Range. They are thus described by Darwin:—\*

\* "Voyage of the *Beagle*" (ed. 1890), p. 237.



“ Early in the morning we arrived at the point where the Beagle Channel divides into two arms, and we entered the northern one. The scenery here becomes even grander than before. The lofty mountains on the north side compose the granite axis or backbone of the country, and boldly rise to the height of between 3,000 feet and 4,000 feet, with one peak above 6,000 feet. They are covered by a wide mantle of perpetual snow, and numerous cascades pour their waters through the woods into the narrow channel below. In many parts magnificent glaciers extend from the mountain side to the water’s edge. It is scarcely possible to imagine anything more beautiful than the beryl-like blue of these glaciers, and especially as contrasted with the dead-white of the upper expanse of snow. The fragments which had fallen from the glacier into the water were floating away, and the channel with its icebergs presented for the space of a mile a miniature likeness of the Polar Sea.”

High escarped mountains border both sides of the north-west arm of Beagle Sound, and plunge almost vertically to the channel. The rock is dioritic. The hills filling the region south of Darwin Range bear great masses and fields of snow, and successive glaciers drain them, descending through gaps often to the sea. As one goes west the weather becomes worse, and the hill-tops are almost perpetually swathed in cloud. A series of

ridges parallel to the Darwin Range occupy the region north of it, with their eastern extremities resting on Beagle Channel.\* They are continued westward through the Fuegian islands and peninsulas. Nothing is known about them inland, but their beauties have been described by those who have passed along Beagle Channel. When that Channel is entered from the east the snows of the Sierra Sorondo are finely seen in the north, dominated by Mount Cornu, with its double summit. Westward the hills on either side of the channel increase in size and boldness of form, and approach the waterway more closely and with a more precipitous front. At the head of Ushuaia Bay, the best anchorage in Beagle Channel, stands Mount Olivaia (1,318 m.), described as a peak, isolated and acute. The western extremities of these ranges approach Magellan Strait and its branches, and have attracted the attention of seamen. They line the south shore and abut against the side of Admiralty Sound, a noble inlet lying between steep wooded and rocky coasts 1,500 feet high.

Opening out of and parallel to Admiralty Sound is Cascade Reach, part of the Gabriel Channel, the scenery of which has been thus described:—  
“Close to the east end of Gabriel Channel is Mount

\* The best map of the interior of Tierra del Fuego is “Tierra del Fuego, segun las exploraciones y los estudios efectuados, por Julio Popper,” 1886-1891. Lit. E. Imp. Kidd y Cia., Buenos Aires.

Buckland, a tall obelisk-like hill (3,500 feet), terminating in a sharp needle point, and lifting its head above a chaotic mass of *reliquiæ diluvianæ*, covered with perpetual snow, by the melting (*sic*) of which an enormous glacier on the leeward or north-eastern side has been gradually formed. This icy domain is twelve or fourteen miles long, and extends from near the end of the channel to Port Waterfall, feeding in the intermediate space many magnificent cascades which for number and height are perhaps not to be exceeded in an equal space of any part of the world. Within an extent of nine or ten miles there are upwards of 150 waterfalls, dashing into the channel from a height of 1,500 or 2,000 feet. The course of many is concealed at first by intervening trees; when half-way down the descent they burst upon the view, leaping as it were out of the wood. Some unite as they fall, and together are precipitated into the sea in a cloud of foam. So varied, indeed, are the forms of these cascades, and so great their contrast with the dark foliage of the trees which thickly cover the sides of the mountain, that it is impossible adequately to describe the scene."

Dawson Island is Fuegia in miniature. Its northern part is pampa, its southern filled by the Lomas range of hills, a continuation of the corresponding ridge on the main island. The products of Dawson Island are wood, inferior coal, and a little gold. On its eastern shore is a large

missionary settlement, whither Indians are sent to be civilised. The Lomas Range rises with great rapidity to a height of 3,000 feet, fronting the western channel of Magellan Straits, whence it receives the prevailing westerly winds upon its cold surface, where the vapour condenses in a veil of mist, which frequently remains when the sun is shining brightly all around.

Parallel to the Darwin Range, but north of Admiralty Sound, stands another range, or set of ranges, varying in height from 2,600 feet to 3,400 feet. It appears that these mountains stretch across the main island in a north-easterly direction to Sebastian Bay, under the name of Sierra Carmen Sylva; whilst another group of equal height, further north and parallel to them, forms a prominent object on clear days to ships after passing the second narrows. This ridge was crossed by Popper in 1886 at its southern extremity, not without considerable difficulty. From the top he saw, far away, standing out on the horizon, "Mount Darwin and Mount Sarmiento, which, like gigantic sentinels of those Antarctic lands, raise their heads, covered with eternal snow, far above the region of tempests." This sentence presumably aims merely at graphic expression, and must not be taken as enunciating a meteorological dictum, which if true would upset the records of every mountain observatory in the world.

The archipelago south of Beagle Sound was

M

surveyed by the French observers, who produced an elaborate map of the hilly interior of the Hoste and other islands, engraved with remarkable beauty. To begin at the extreme south, the little island Cape Horn has been landed on and ascended, but the neighbouring Hermit Island has received more attention. King says that "it has a most remarkable appearance when seen from the south. Its outline is a series of peaks, following each other in regular succession, and resembling the worn teeth of an old saw." Mount Hyde is made sufficiently distinct by its rounded apex, and by being higher than any other land near it. Kater's Peak (1,742 feet) is also remarkable in this view from its conical form and very pointed summit. Kater's Peak was ascended in April, 1829, by Captain King.\* The climb began immediately from the coast, and was at first steep. The way led up a watercourse. "The first third of the ascent, from the comparative facility offered by the watercourse, was only impeded by loose stones which frequently yielded to the foot and rolled down the gully, to the great danger of those who followed. The banks of the ravine were saturated with water, and covered either with spongy moss or matted with plants. . . . We had to leave the bed of the torrent when it became full of wood, and then our difficulties increased much, for in many places we had to

\* "Voyage of the *Beagle*," i., p. 201.

scramble over the thickly matted and interwoven branches of beech, which frequently yielded to our weight, and entangled our legs so much that it was no easy matter to extricate ourselves. At the height of a thousand feet vegetation became much more stunted. . . . For the last two hundred feet we walked over the bare rock, on which no other vegetation was observed than lichens. The summit of the peak is formed by a loose pile of greenstone rock, in which the hornblende appears in very varied forms. The only living creatures we saw were a solitary hawk and an insect, a species of *Oniscus*. Nothing, in fact, could be more desolate. . . . The view to the north-west was very extensive, and bounded by long ranges of snowclad mountains of great height ; the atmosphere was remarkably clear, and everything unusually distinct."

Further west lies Hoste Island, a piece of land extraordinarily cut up by bays and fiords. The backbone of its south-east extremity is a range called the Sentry Boxes. Its highest point (1,866 feet) was climbed from Orange Bay on January 1st, 1883, by members of the French expedition. New Year's Sound, which penetrates with its many arms far into Hoste Island from the south, was visited in 1823 by Weddell, and described by him. The French expedition also spent some time there, and a party climbed Mount Jane (1,837 feet) near its mouth. On the top they found a stone man,

Weddell's or Fitzroy's. The view embraced the intricate bay with its many isles, and behind were the toothed and abrupt peaks of snowy mountains, 2,500 to 3,000 feet in height, all ranged in ranks trending west-north-west and east-south-east. From the top of Perrier Island the panorama was photographed. The mountains at the west end of Hoste and the neighbouring Gordon Island are heavily glaciated above and, as usual, densely wooded below. The existence of many glacier outlets in deep gaps along both sides of the south-west arm of Beagle Sound has been reported by the few observers who have passed that way. The Cloué Peninsula appears to contain a specially large ice-sheet, which sends down several arms into Christmas Sound.

The rocky islets off this coast present very striking forms. One, surmounted by two towers, attracted Captain Cook's attention, and was named by him York Minster. The summit of Burn Island, in Desolation Bay, some way further west, was attained by the French, who give an interesting description (vol. i., p. 130) of the wild view from it. To catalogue these remote rocks would be tedious. Enough has been said to show the character of this storm-beaten land, where the summits of submerged mountains are attacked by air and ocean with almost ceaseless fury. In the portion of the mainland and archipelago north-west of the Darwin Range the mountain ridges are continued. Brunswick Peninsula is the most

southerly portion of the South American continent, and Cape Froward is its extreme point. Around this point the Strait of Magellan makes its great bend. Almost the whole of the interior of the triangle of land is mountainous, but it has never been penetrated. There are large snowy areas and glaciers, while the peaks, wooded below, are rugged and abrupt. Near Port Gallant, on the south coast, is the comparatively well-known eminence named Mount de la Cruz. It was climbed twice (in 1827 and 1830) by parties from the *Beagle*, who both built stone men. The first of these parties found on the top remains of a glass bottle and a roll of papers left there by Don Antonio de Cordova in 1789, and Cordova's copy of a document which he had found there, and which had been deposited by M. de Bougainville in 1766.

Not far from Cape Froward is Mount Tarn (2,600 feet) which was ascended on February 10th, 1827, by a party from the *Beagle*, including Darwin. His description of this expedition\* is worth quoting in full:—"Our way led through thick underwood, and then, with a gradual ascent, among fallen trees, covered with so thick a coating of moss that at every step we sank up to the knees before firm footing could be found. It was very laborious work, and, the ground being saturated and each tree dripping with moisture, we were soon wet through: We proceeded along the same sort of

\* "Voyage of the *Beagle*," etc. (ed. 1830), vol. i., p. 39.



road up a steep ascent, someone of the party constantly falling into deep holes covered by moss or stumbling over fallen trunks of trees. As I carried a barometer, I was obliged to proceed with caution, and succeeded in emerging from this jungle without an accident. After about three-quarters of an hour spent in this way, we reached an open space, where we rested and I set up the barometer. Here we found cypress and very stunted growth.

“Our road hence was rather more varied, always steep but sometimes free from impediment. Here and there we observed the boggy soil was faced with a small plant (*Chamitis sp.*) of a marsh character, growing so thick and close as to form large tufts, over which we walked as on hard ground. We struggled through several thickets of stunted beech trees, with a thick jungle of berberis underneath, whose strong and sharp thorns penetrated our clothes at every step, and began to find the fatigue very oppressive; some of my boat’s crew suffered much, being unused to much exercise. At last we approached the place where Mr. Cooke and his party had established themselves, and upon hailing were invigorated by a cheer in reply. We reached the bivouac in a very wayworn condition, and found to our great comfort the tent pitched and a good fire burning.

“The ground was so exceedingly wet that, although we slept upon branches forming a layer

at least a foot thick, we found ourselves in the night lying as if in a morass, and suffering from cold, even with a large fire blazing at our feet. At daylight next morning we resumed the ascent, and passed over, rather than through, thickets of the crumple leaved beech, which from their exposure to the prevailing winds, rose no higher than twelve or fourteen inches from the ground, with widely spreading branches so closely intervoven as to form a platform that bore our weight in walking. We next traversed an extent of tableland much intersected by ponds of water. Mr. Tarn shot two plovers of a new species (*Charadrius rubecola*, *Zool. Journ.*, vol. iv., p. 96) and a snipe. We then ascended three or four hundred feet, and crossed a deep ravine. The bottom of the ravine was clay-slate in a decomposing state, but the surface of the ground was strewn with pebbles of granite. Another plain with many ponds succeeded, the intervening spaces being covered with tufts of chamitis and studded here and there with small clusters of dwarf beech; but the ground was so hard and firm that we proceeded rapidly without fatigue until we reached the height of 1,800 feet, when the ascent became very steep. Near the summit lay a large mass of snow rapidly melting away. We reached the highest pinnacle of the mount at seven o'clock (having left our resting-place at four), and immediately set up the instruments. I was obliged to avail myself of Mr. Tarn's

assistance to hold the barometer, whilst two of my boat's crew held the legs of the theodolite stand, for the wind was blowing very strongly and the edge of a precipice was close to us, perpendicular for many hundred feet, and thence downwards so steep that anybody going over would fall at least a thousand feet. Unfortunately the day was very cloudy, and many squalls of sleet and rain, which obscured the hills, passed whilst I was taking bearings. To the southward everything was enveloped in mist." Darwin says that the view from the top of Mount Tarn was "characteristic of Tierra del Fuego; irregular chains of hills, mottled with patches of snow, deep, yellowish green valleys, and arms of the sea intersecting the land in many directions."

Behind, that is to say north of, the Brunswick Peninsula lies the deeply hidden Otway Water, from which a narrow passage—Fitzroy Channel—leads into the remote Skyring Water. Nowhere, possibly, in the world does the sea penetrate the land so deeply and elaborately as in this little-known region, the comparatively rapid elevation of which may in a near geological future turn these bays into lakes. Ponsonby Land, the eastward extension (between Otway and Skyring Waters) of King William IV. Land, is one of the wildest and most desolate hilly regions known. It is occupied, says Captain King, by high snow-covered mountains of peculiar form, the summit of one resembling a

castle with a high tower. Of another, fitly named Mount Misery, we had a fine view from Otway Water. It is about 3,000 feet in height, twice as high as the surrounding mountains, and was quite bare, even of snow, on the summit. Of course, these forbidden regions have never been traversed, they have only been seen from boats; but the low Beagle Hills beside Fitzroy Channel were climbed by Captain King, who enjoyed an extensive view from the top. He saw far away to the south high peaks over Cape Froward and the hills along the south-west coast of Brunswick Peninsula.

The western archipelago, which lies along the south of Brunswick Peninsula and King William IV. Land, is a mere maze of hills, hill-tops, and deep indenting channels. In Clarence Island the Sarmiento Range is prolonged, but at a lower elevation. The peaks are described as toothed and remarkable in form, whilst Mount Bouqueron (3,000 feet), beside Magdalen Sound, is specially noted as a high black mass crowned with splintered needles. On the largest of the neighbouring Magill Islands is Mount Skyring, which was climbed on May 21st, 1829, by Lieutenant Skyring and Mr. Kirke. "We gained the summit," they write, "after three hours' hard travelling. During the last 500 feet of ascent the mountain was almost precipitous, and we had the utmost difficulty in passing the instruments from hand to hand. Its formation is remarkable, although I believe the

same structure exists throughout the hills around. The base is a coarse granite, but this solid formation cannot be traced half the height ; above is an immense heap of masses of rock, irregularly and wonderfully thrown together, many huge fragments overhanging with apparently very little hold." The same peak was twice ascended by Captain Fitzroy, who records that there is a quantity of pyrites in the hill, whilst on one occasion from the top Mount Sarmiento was seen "in all its grandeur, towering above the other mountains to at least twice their height and entirely covered with snow." Skyring made several other small ascents for surveying purposes in the neighbouring islands.



69 68 67

Port Gallegos

C. Virgins

MAGELLAN STRAIT

SOUTH

ATLANTIC

OCEAN

Sebastian Bay

San Carlos

TIERRA DEL FUEGO

Range  
M. Darwin

M. Olivia 4324

M. Cornu

Ushuaia Bay

Sierra Sorando

Range  
M. Hermit

Hermit

M. Hyde

Horn C. Horn

69 68 67



## CHAPTER VIII.

### EXPLORATION OF MOUNT SARMIENTO.

ON the morning after my arrival Mr. Meredith took me to call on the naval officer in command of the station, who was likewise acting Governor of the Territory. He said that he had received a letter from the Minister of Marine, and that he would do his best to let me have one of the small gunboats, or rather despatch-boats, attached to the station. Of these there were three, all unfortunately absent at the moment. The *Huemul* had gone to Last Hope Inlet with a Government surveying party, and there broken down. The *Toro* had been sent to take her place, and the *Yanez* to tow her back. Till she arrived nothing could be done. None of the cutters or small merchant steamers belonging to the port could be hired, for it was their busy season. They were scattered about the archipelago collecting wool from the various sheep-farms, which send their produce to the nearest point on the coast, whence it is carried by water for shipment from Sandy Point.

Thus I had several days in which to perambulate the town and ride about the neighbourhood.



I was reduced to extremities in the effort to kill time. Thus for a whole evening I wrestled with the following sentence from a recent very popular novel: "A strong, deep love, like the Nile in flood, leaves, like a sediment behind, which in so many cases renders marriages, from which the tumultuous stream has passed, happy and stable, an alluvial deposit which makes the earth rich and fruitful in the sober green of friendship." I do not yet know what the author was trying to say.

Few are the resources of Sandy Point in the way of "sights." There is the Fire Brigade Station, which is likewise a club, surmounted by a tower commanding a fine view all over the town and across the strait to the low shore of Tierra del Fuego. According to Chilean law every citizen must either do military service or join the Fire Brigade, so that in many towns the Fire Brigade is the best club in the place. At Sandy Point there is also a theatre, which was closed, and there are some public buildings, and one imposing stone-built house in the square, the property of a landed proprietor. The roadways, at present, are mere remnants of pampa, unmetalled and unpaved, furrowed with deep ruts and often almost impassable from mud. After heavy rain the water stands in ponds stretching across from house to house, so that the foot-passenger must wade or swim. In front of one or two of the better houses is a fragment of paved side-walk, and some streets boast the luxury of a

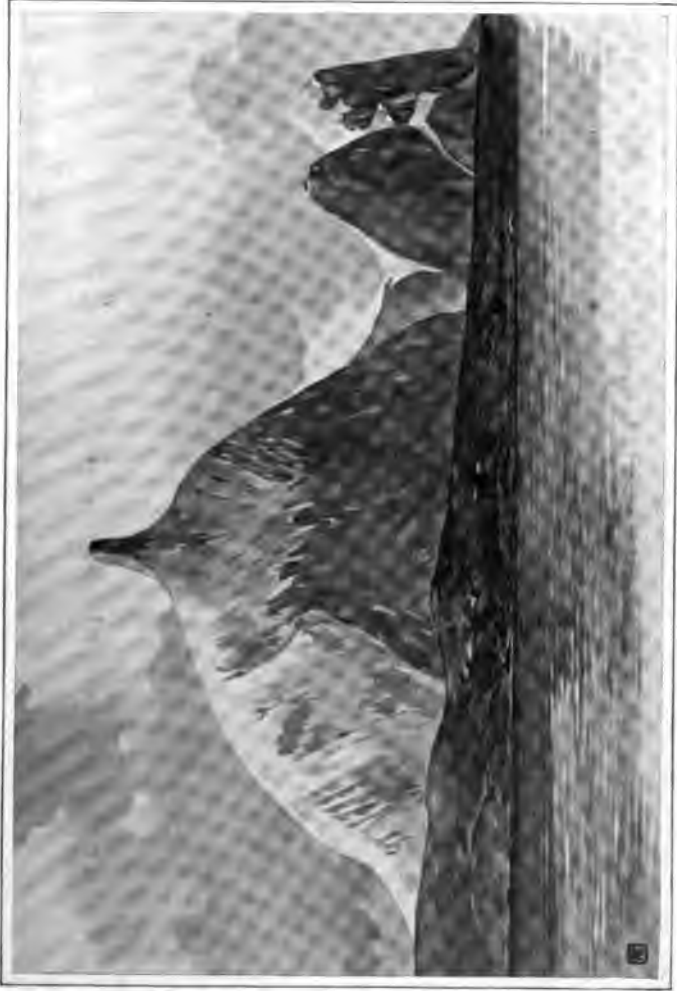
line of boards along the sides for foot-passengers. In the lower parts of the town household rubbish is unceremoniously thrown into the road without so much as a "Gardyloo" to warn the passer-by. The best place to spend an idle hour in Sandy Point is by the shore or on one of the piers, where freight is always landing. Besides the big steamers that frequently call, a number of sailing vessels are always at anchor, and the little sloops and steamers of the port keep going and returning as aforesaid. Two or three big hulks lie off, as store ships for warehousing wool. Thus there is something going on.

One bright morning, when strolling to the pier, I saw on the far horizon a number of snowy peaks, perfectly clear, though faint in the exceeding distance. Running up the signal tower of the master of the port, and borrowing his big telescope, I settled down to a minute examination of the mountains. Chief amongst them was a finely rounded mass, curving up to an astonishingly sharp finger-like summit, which proved to be a narrow snow *arête*, seen end on. I made a most careful drawing of it, under the impression that it was Mount Sarmiento; but it turned out to be Mount Buckland, a peak little more than half Sarmiento's height. Further to the left was a broad, white, wall-like mountain or ridge, part of the range that overlooks Admiralty Sound, or possibly of the Darwin Ridge. The bases of these

peaks, eighty to one hundred miles away, were sunken far beneath the horizon. Their white summits rose above a low undulating outline of blue land, apparently the northern shore of Dawson Island.

Later on in the day I observed a much bigger mountain mass to the right of Mount Buckland, but its summit was buried in cloud. I could trace a ridge descending almost directly towards me, with huge and steep glaciers falling down on either side of it. I watched hour after hour for the cloud to disperse, but it remained undissolved till night came on. On other days the same mountain was often partially displayed, but never in its entirety. This was Mount Sarmiento.

At length the *Yanez* came in, and a starting day was fixed. Then a gale sprang up and prevented coaling, which involved another twenty-four hours' delay. When all was finally ready Maquignaz and I went on board with our baggage. The *Yanez* is an old iron steamer of twenty tons, said to have had some connection with Stanley—used by him on the Congo, perhaps. Her captain was Señor J. Fabregas Pagés, and her chief engineer Mr. John C. Jackson, of Glasgow. There was little enough accommodation in the tiny cabin; several persons had to sleep on the floor. I sat up late with Mr. Jackson, listening to thrilling accounts of his experiences in the waters of the Fuegian Archipelago. He told me much about



**MOUNT BUCKLAND, SEEN THROUGH  
A TELESCOPE FROM SANDY POINT.**

*To face p. 19.*



the building of the fine Evangelistas Lighthouse, which stands on an isolated rock outside the west entrance of Magellan Strait. But chiefly we talked of the Indians of Tierra del Fuego and the channels. Many were the tales he told me of murders and robberies perpetrated by them on lonely settlers and small surveying parties; of boats surprised with sleeping crews, cut down to a man; of shipwrecks pillaged and their crews slain; and of reprisals equally terrible.

The Indians divide themselves into three separate groups—the Onah Indians of Tierra del Fuego itself, the Yahgan Indians of Cape Horn and the outer archipelago, and the Alaculofs of Smyth Channel. All are described as “petulant, quarrelsome, and ever intent upon mischief.” They are a pestiferous nuisance to the pioneers of civilisation, who cannot fail to regard them with hatred. Yet it is impossible not to extend pity towards these unfortunates, whilst wishing them swift euthanasia. So long as they were the sole inhabitants of Fuegia their arrested development matched the conditions of their life. They hunted guanacos on the wide lands of the main island; they made no attempt at keeping domestic animals or cultivating the ground; the supplies that wild nature provided for them just sufficed for their small needs. But when civilised men took the Fuegian plains into occupation, and guanacos gave way to sheep, the Indians not unnaturally regarded the new

animal as one they might hunt equally with its predecessor.

They began by stealing sheep in ones and twos. The farmers naturally retaliated upon them, and a feud sprang up. The Indians, finding that to take a few sheep was dangerous, reduced the number of their raids; but when they did surprise a flock they drove it away bodily to some remote fastness of the hills, where, after slaughtering the animals, they stored the carcasses for future consumption in the icy waters of a glacier torrent. An unlucky farmer would thus awake to find his shepherd murdered and the whole profits of a year's industry swept away in one night. Naturally the first thing he did was to fetch help from his nearest neighbour, fifty miles away perhaps, and then ride on the track of the Indians till he found them. After such an encounter, it is improbable that many of the offenders escaped alive. In this rough warfare there grew up a set of man-hunters, experienced in tracking, who were ready to hire out their services to any farmer standing in need of them. Presumably they earned their pay. At all events, the Indians have greatly diminished in number and become very shy. Sometimes an organised Government expedition has collected together all the natives of some particularly troublesome centre, and brought them to Sandy Point or to one of the mission stations to be civilised. But the result has always been the

same. Put into clothes and dwelling under roofs, they die off at a frightful pace from pneumonia or consumption. In one instance, out of a party of over a hundred, less than a fourth survived a single year of civilisation. The survivors, when set free, speedily relapsed into savagery. No doubt an expensive and scientific treatment might be applied to this painful race problem, but the territory is too poor to repay the cost, and the settlers have far too much work of their own on their hands to undertake any but rough and ready methods. In a few years the Indians will assuredly have been exterminated except in the wild outer islands and stormy channels that border the ocean itself.

At an early hour next morning I came on deck as we were passing Port Famine, the site of Sarmiento's wretched colony. An Austrian lives there now in comfort with wife and family; sheep graze the lands where the Spaniards starved, mutinied, and died. From the port a wide valley runs far in towards the north-west, and no great mountains can be seen in that direction, but tangled forest covers the country and impedes its development until such time as cattle are introduced in sufficient quantity to wear it down. As the forests contain little valuable timber, they must either give way to cattle or remain useless. Almost opposite the southern extremity of the mainland there opens, due south at the angle of Magellan Strait, the wide Magdalen Sound, about thirty miles deep.



At its southern extremity Cockburn Channel leads away at right angles to the west, and then bending round southward opens to the Pacific through a maze of islands, whereof perhaps the majority are uncharted. At the outer angle of the elbow, where Magdalen and Cockburn Channels join, is the anchorage named by us Puerto Año Viejo. Immediately above this anchorage rises Mount Sarmiento, so placed on Tierra del Fuego itself as to look right down both these channels and be seen along them from a great distance.

The luck of a distant view was not to be ours, for the cloud-roof lay low and all the high mountains were hidden. Yet we could look far up the narrow Gabriel Channel, and see the great snow-field lying on the plateau of Mount Hart, sending down icy tongues on both sides into Gabriel Channel and Keats' Sound. Just as the glaciers of Mount Sarmiento itself seemed to be clearing, a black storm swept down and blotted them out, while the sun burst forth upon us and illumined the bold jutting headlands and bright snow-fields of Clarence Island on our right. A canoe was sighted making its way towards us, and presently came alongside. It was made of bark and skins, stretched upon a wattle framework. It contained a man, two squaws and a baby, some of the most ill-looking and unclean specimens of humanity I ever saw; They were scantily clad, greasy-looking creatures, more like seals than human beings.



**THE BASE OF MOUNT SARMIENTO AND  
THE NORTH AND WEST GLACIERS.**



**MOUNT SARMIENTO FROM  
PUERTO AÑO VIEJO.**

*To face p. 194.*



Everything about them seemed damp and dirty. They had an otter skin to exchange for tobacco. In the bottom of the boat, on a little hearth of earth, smoked the embers of their fire, on which they were cooking an unrecognisable bird. After leaving them, we presently passed close beside a hump-backed whale, which paid no attention to us. Then a school of porpoises gave us their frolicsome company. A mile or two away, near the mouth of Keats' Sound, a huge whale was leaping from the water like a salmon. At the head of the sound was an undulating snowy area apparently stretching back to Mount Buckland and round to Sarmiento.

We were now approaching our peak, and better weather was coming down with us. The great glaciers began to display themselves in all their majesty; far aloft there came a momentary revelation of a bright icy point above the clouds, which vanished almost as soon as it appeared. The great width and mass of the mountain surprised me. From its upper regions a ridge extends north-westward, broken into many peaks and separated by a wide snow saddle from the final uplift. Down the two faces of the mountain, north and west, descend two *névé* cataracts, broken up by an intricate network of crevasses into nodding seracs, whose blue sides are visible from afar. These glaciers curve round below to west and north, and approach the sea. In Darwin's time they actually

ended in the water, as recorded by Lieutenant Graves. Now they are cut off from the channel by belts of densely wooded moraine. The *névé* cataract of the west glacier, tossed out by a narrow icefall, spreads into an open basin below. Its seaward margin is a very steep forest-covered moraine, apparently deposited on a slope of rock some 500 feet high. The torrent gushes out and falls down a gully into the sea, its hurrying waters flashing out beneath overarching trees. The northern glacier ends on flat ground, with a wide curved front, like that of a Spitsbergen inland glacier. The forest-covered moraines form a lovely foreground to the white ice rising behind them.

We plied to and again for an hour or more at the angle of the channel, to reconnoitre the mountain and decide by which glacier to approach it. The west glacier first moved my preference, as its left side sloped up easily to the west ridge, which appeared to be a practicable line of ascent as far as we could see. Presently the clouds disclosed it to a high level, revealing an uncompromising series of jags, pinnacles, and cliffs, scarcely climbable under the best conditions, but now entirely cluttered up with long ice-feathers plastered on to the rocks by the wind. They were exactly like the icy encumbrerment I had become familiar with on Mount Hedgehog in Spitsbergen. Similar ice-feathers, as much as a yard in length, are sometimes formed all over exposed surfaces of rock, even in the



THE NORTH SARMIENTO  
GLACIER.



THE BASE OF MOUNT SARMIENTO  
AND THE WEST GLACIER.

*To face p. 17.*



English lakes and Scottish hills at winter time. It is, of course, impossible to climb difficult rocks thus disguised. To ascend the west face of the mountain direct, through several thousand feet of ice-fall, was not to be thought of. We afterwards found that the upper portion of this face is a precipitous cliff. We were, therefore, reduced to the only alternative, an ascent by the northern glacier. Steaming away towards its foot, and approaching the shore with the utmost caution to avoid the many sunken rocks hereabouts, we sounded for an anchorage. For a long time none could be found, so steeply does the shore descend. At last, by good luck, we hit upon a small shallow area, the summit of a submerged hill, where the anchor held and the steamer could lie in relative safety, a couple of hundred yards from the shore.

I landed immediately to find a way to the glacier. Beyond a few yards of beach (steep shingled), edged above with a margin of flowers, came the forest, less dense, because younger, than any I had thus far visited in these regions. Yet, though seventy years ago the ground was covered with ice, it is now not merely encumbered with fully grown trees and tangled shrubs, but with a thick layer of fallen and rotting timber. By following the trough of a small stream of very clear water we passed through the belt of forest in half an hour's going. Sunshine fretted the trees, dappled the ground below, and banished the sense



of gloom which usually haunts these Fuegian woods; the floor was covered with anemones, ferns, and moss in damp profusion. Beyond the forest came a belt of stony ground from which the glacier, now seen in great splendour, has but recently retreated, so that as yet it was only covered with sparse shrubs, moss, grass, and so-called Fuegian strawberries, the old-fashioned name of which, I am told, was Magellan's grapes. Pools lay among the mounds; on one of them we shot two wild duck. The bushes were frequented by beautiful small birds of coal-black plumage, named *tordo*; we found that they also made an exceptionally good dish. There were besides tree-creepers, green linnets, and a number of other small birds, whilst plenty of flowers blossomed in open places. The glacier is evidently still retreating and shrinking in width. Thus for a mile or two the open stony tract offered an easy line of approach to the foot of the peak. I never saw purer ice than that of this glacier. Its margin all along the side is split up by crevasses. The upper edge of the ice is constantly breaking off and falling over, so that the flank of the moraine is covered with white blocks of ice of all sizes.

The sun was shining quite hotly, and the ice was almost dazzlingly brilliant. After scrambling with difficulty on to the glacier, wandering about the moraine area, and looking into the pools, all red with a vigorously growing weed, we returned

towards the shore, finding an exit through the forest at a much narrower place. Lovelier weather could scarcely be desired. The air was cool, the sun bright ; there were little puffs of breeze ; it was the very perfection of a day for active open-air life. Yet the clouds still hung stationary on the summit of Sarmiento. We lay awhile on the shore beside the rippling waters and drank a bottle of wine, with no thought of storms, past or to come ; then rowed away in hopes of seeing our mountain's misty veil lifted, if only for a moment. The long, late midsummer sunset was at hand. A tender pink light, far fainter than the rich radiance of the Alpine glow, lay upon all the surface of the curdled glacier and empurpled the crevasses ; it permeated the mist aloft, which lay at the same level it had maintained so long. The cruel rocks, incrustated with ice, and the foot of the final precipice, with its steep ridges and icy couloirs, were all that could be seen. The graceful ice-rounded foundation rocks of this and all the other mountains around slope up to the cliff and jagged *arêtes* above, and make each peak beautiful with contrasted forms, massive yet suave of outline beneath, splintered and aspiring above. In one direction we looked along the channel of our approach ; in another, for twenty miles or so, along Cockburn Channel, with a fine range of snowy peaks beside it, prolonging Sarmiento's western ridge. The water was absolutely still, reflecting the dark shore, a few

divers alone making ripples on its surface. In this stillness we floated with oars drawn in. The silence of nature took possession of us; not an avalanche fell upon the hills, not a rock stirred, no breeze whispered. The faintest hum of falling water haunted the listening ear like the memory of music. I know not how long we may have remained thus inert. Looking once more aloft I found the high mist grown thinner. The pink light crept higher and higher as the cloud dissolved, and yet steeper ice-walls and more precipitous ribs of rock were displayed, till at last some white points appeared upon the summit crest. Even they were not the top, for a cloud lay close above them, hiding we knew not what. Suddenly—so suddenly that all who saw it cried out—far away above this cloud, surprisingly, incredibly high, appeared a point of light like a glowing coal drawn from a furnace. The fiery glow crept down and down as though driving the mist away, till there stood before us as it were a mighty pillar of fire, with a wreath of mist round its base, and downward all the wonderful pink wall and cataract of ice to the black forest and reflecting water. We had seen the final peak now—a tower of ice-incrusted rock, utterly inaccessible from the western side.

A little while later the fair colour had faded away. Mists had regathered, and night was coming on apace. We rowed away for the steamer, but had not gone very far before a faint silver point appeared

above the mist where the glowing tower had stood. The cloud-curtain rolled slowly down again, and all the summit crest was revealed, cold and pure. Then the whole south-west ridge appeared, and finally the entire mountain, like a pale ghost illumined by some unearthly light. It was a weird and almost terrifying vision. A moment later clouds rolled together once more, and solid night came on. Wind sprang up ; we hastened to the steamer for warmth, food, and sleep. The summit we had seen was doubtless one of the terminal teeth whereof there are said to be two, approximately equal in height, standing at opposite ends of a ridge. Both are visible from Sandy Point, but I never saw the other. Satisfied that we had chosen the only practicable side of the mountain for attack, and hopeful of finding the culminating point more easy of access than it had appeared from the north and west, hopeful too that the weather was settling for one of the brief fine intervals that alone can be expected in this storm-beaten region, I turned in for a few hours' rest.

At 12.15 next morning (December 31st) we again left the ship—Maquignaz, two sailors, and I. We carried rifles, a few light provisions, and the ordinary implements of mountaineering. As we pushed off from the steamer an Indian canoe glided away silently, and disappeared in the shadow of the shore. We afterwards found that it was one of several that were sneaking about in the neigh-

bourhood, a dangerous locality, as Captain Slocum had occasion to discover. After fifteen minutes' rowing over calm water, reflecting the grey sky, we landed where we had re-embarked the day before and entered the belt of wood, whose dusky recesses were hardly illuminated by the faint mingling of watery moonlight and dawn. We lost our way hopelessly, and had a desperate struggle to get through. The moraine area behind was exasperating to traverse in the darkness. We kept falling into puddles, tripping over stones and shrubs, and bruising ourselves against various obstacles. As the pink light, heralding sunrise, touched the high mists, and for a moment dyed a patch of thin cloud through which the silver moon was shining, we halted beside the glacier. The best that can be said of the weather is that it was not immediately threatening; but the air was unpromisingly warm, and among the plentiful clouds were several of umbrella shape, capping peaks, an almost unfailing sign of wind and bad weather to come. Advancing to the farthest end of the moraine flat, we came where glacier and hillside met. We should have done better to work along the edge of the glacier itself, but we turned up the hillside instead. This involved a tough scramble up an ice-polished wall whose every cranny was filled with moss and every larger crack occupied by a tree. The scrambling had to be done from tree to tree, for the moss was too soft to hold, and the rocks too smooth to give



COCKBURN CHANNEL, FROM THE  
SIDE OF MOUNT SARMIENTO.

*To face p. 204*



grasp to the footing. After traversing a further belt of forest, we came out on a slope of grassy alp, interspersed with patches of bog in the hollows. Mounting this for some distance, we halted at an altitude of 1,400 feet when daylight had fully come.

The alp on which we stood was the broadened out lower part of a ridge that curved down from one of the peaks of the offshoot range, descending west-north-west from Sarmiento. On our left as we ascended was the main glacier, whose chief tributary, descending Sarmiento's north-east face, bent round outside our ridge, following its curve, and so, emptying into the main ice reservoir, flowed with it westward to the sea. On our right was a wide cirque or hollow, surrounded above by the secondary peaks I have mentioned—beautiful towers and spires of splintered rock. It was filled all round with steep glaciers, broken into splendid icefalls, and pouring forth their many streams in graceful waterfalls over a cliff at their feet. The whole of this side valley, down to its foot near the moraine flat which we had traversed below, was smoothed and scored by old ice action. Our steamer was just visible over the forest belt, and when I first saw it I thought it was a small floating log, so near and minute did it seem. We looked along Cockburn and Magdalen Channels, and over the wooded and snowy hill chaos of Clarence Island between them. The air was so clear in the gloom of the morning that the remotest mountains



visible seemed like molehills close at hand. The landscape bore a striking resemblance to views I recalled among the Lofoten Islands from various points. Up the fiords and on the promontories of Clarence Island, and on the little wooded islands that flank it, thin columns of smoke ascended into the calm air and drifted away to immense distances before dispersing. They were the cooking fires of scattered families of Canoe Indians. Where we saw a dozen or two, they might have been counted by hundreds in ancient days. Such smoke columns were also used by the natives as far north as northern Patagonia for signalling to one another; some of these we now beheld may have been signals. They made a striking feature in the landscape. Such signal fires gave the name to Tierra del Fuego.

During a brief interval we had one more glimpse of Sarmiento's peak above the rocks of the cirque. Clouds were eddying about it; it was evidently the focus of a gale. We saw enough to learn that the northern slopes reach not merely to the foot of the rock tower, but lean up against it to at least half its height. This was a great encouragement; obviously we had chosen the right way. We plodded upward. The grass soon gave way to slopes of firm snow and occasional stone *débris*. A low cliff of slate arising on our left hand shut out the northward view. Striking the crest of the ridge at a gap above these cliffs, we thought our-





**MOUNT SARMIENTO, FROM  
HALFWAY UP.**



**THE NORTH-WEST RIDGE  
OF MOUNT SARMIENTO.**

selves far enough from possible Indian intrusion to leave the rifles hidden beneath an overhanging rock. Henceforward we scrambled along a broken ridge of rocks, in places surmounted by a narrow wall, almost like one built by human hands, and falling into decay. Beyond that came a snow ridge and then a peak, whereon we halted.

The position was a commanding one, I photographed the panorama, for it seemed that the fine weather could not last much longer. As a matter of fact, this was the last point from which we saw anything. Our altitude was about 4,000 feet. We were cut off from Sarmiento by a wide snow-saddle, about 100 feet below us, communicating on one side with the great west glacier and on the other with the north glacier. It would be a good situation for a camp. The ridge we stood on is part of the north-west subsidiary range already twice referred to. We enfiladed its peaks, and were surprised at the boldness of their forms. Looking upward, we beheld the northern snow-slope, broken into *névé* seracs, disappearing in cloud. But the most striking view was to north and east, where we overlooked the great reservoir which pours out glacier tongues in three directions—east, north, and west, the last being the main glacier off whose foot we had landed. Beyond this silent, pallid expanse came the dark ranges, crowned with snow, that bordered the deep trench of Gabriel Channel. North, far away to Cape

Froward, we looked along Magdalen Sound. Then came the intricate chaos of peaks and ranges filling Clarence Island, over which we gazed to an immense distance. Still further around we looked down Cockburn Channel and along the snowy ranges south of it. It was a wonderful view, not merely for its extent, but for the indescribable solemnity of its colouring. There was no sheen upon the water, no glitter on the snow. It was white with the pallor of death, and framed within forest belts of almost sable blackness.

A storm, gathering in the north, soon blotted out the southern extremity of the continent. There was evidently no time for delay; we had need to descend on to the saddle. Beyond it the way led up a great broken snow-field of ever-increasing slope, where the seracs were large and crevasses yawned in all directions. It was a difficult glacier, gradually narrowing with the ascent as the side ridges came together. The last slope was less broken. At the very top of it were to come the rocks of the final pyramid; but we never touched them, or even saw them, for the storm battalions from the north swept down upon us with fury, swallowing up the view before it ever became a panorama or our eyes could behold what I so longed to see—the great range stretching away behind Mount Sarmiento to Mount Darwin, which looks down on Beagle Channel. The darkness in the north, before it descended upon us, was truly



LOOKING NORTH-NORTH-EAST  
FROM THE NORTH SLOPE OF  
MOUNT SARMIENTO.

*To face p. 246.*



appalling. It seemed not merely to cover, but to devour the wintry world. The heavens appeared to be falling in solid masses, so dense were the skirts of snow and hail that the advancing cloud-phalanx trailed beneath it. Black islands, leaden waters, pallid snows, and splintered peaks disappeared in a night of tempest, which enveloped us also almost before we had realised that it was at hand. A sudden wind shrieked and whirled around us; hail was flung into our faces, and all the elements raged together. The ice-plastered rocks were accounted for; we came to resemble them ourselves in a few moments. All landmarks vanished; the snow beneath was no longer distinguishable from the snow-filled air. To advance was impossible.

The one thing to be done, and done at once, was to secure our retreat. With what speed we hurried down may be imagined. Not till we gained the lower glacier did snow give place to rain, which soaked us to the skin and overflowed out of our boots. We floundered in swamps and tumbled through brushwood; then striking out a new route, climbed on to the glacier and followed it right down to its foot, where the rapidity of its present retreat became apparent. Instead of ending, as we supposed, in a bulging front, it fades away beneath a covering of moraine, in a series of icy mounds, some of them quite high and almost isolated from the snout, last fragments of its greater extension. Thus, to our surprise, we came to a



broad opening, perhaps a hundred yards wide, once the bed of the glacier torrent, which led right through the forest belt to the shore. Avoiding all trouble with the wood, we came out upon the beach and fired our guns to attract the attention of the steamer. For half an hour there was no reply, and we sat lamenting on the shore in the pouring rain; but a boat ultimately put off and took us on board.

Had it been possible, I would gladly have stayed a week or two at this spot awaiting better weather. But it could not be, for the *Yanez* had been out for many weeks without intermission, and the holidays of captain and crew were long overdue. Moreover, the boiler required cleaning, and the engineer told me that he was nervous about it. There were also other repairs urgently requiring attention. The steamer was to be immediately overhauled at Sandy Point, where there was a vacancy for her. If the opportunity were let slip, some other boat would be taken in hand and she would lose her turn, whereby the lighthouse service, to which she properly belonged, would be upset. Lastly, Maquignaz had no stomach for any more outlandish climbing; his heart was set on getting home at the earliest possible moment. Word was therefore given to stoke up the furnace and sail as soon as possible, my intention being to steam down Gabriel Channel, visit Admiralty Sound, and return past Useless Bay to Sandy Point.

But when we came off the mouth of Gabriel Channel the deluge of rain was so dense that we could not even see the entrance. There was nothing for it, therefore, but to return by the way that we had come. To enliven the passage I sat in the galley and talked with the cook. We brewed milk-punch—"a nutritious comfort," as he called it—and told one another our most incredible stories. Sandy Point was reached the same night, our goods were landed, and we were re-established in the hotel before very late. I went to bed with an armful of weekly editions of the *Times*, and was deep in the records of recent events when, at midnight, bang went an explosion under my window. Bells rang and a great hullaballo arose. I rushed to the window expecting to see a fire, or at least a murder. But nothing of the sort—it was only the year 1898 that was dead!

## CHAPTER IX.

### PATAGONIA : A GLIMPSE OF THE PATAGONIAN PAMPAS.

LIFE at Sandy Point is by no means dull. Not only do many agreeable people reside there, but it is an intersection point in the orbits of many more. There are the officers of steamers of various lines that make longer or shorter stoppages off the port, who are well known to the residents; there are the sheep-farmers who visit the town at frequent intervals to transact their business; there are the itinerant engineers who go about to set up or repair the machinery for sheep-shearing; and there are other elements of floating population. For example, at the time of my visit the great New Zealand liner *Metaura*, which had gone on the rocks near Cape Pillar, was being salvaged. Her cargo was said to have been the most valuable ever consigned in a single bottom from New Zealand. It consisted chiefly of wool, but among other miscellaneous articles of value were the famous Bible and various effects of Grin, alias De Rougemont.

The salvage officer invited me to go out with him to the wreck and search for these treasures; but when I learnt that we should be tossing for a

week in a cockle-shell steamer in the tumultuous sea I withheld so considerable a tribute to the goddess of instability. Sandy Point was redolent of the *Metaura*, for her bales of wool were landed there, all dripping wet and swollen, and carried to open spaces of ground, where they were pulled asunder and laid out to dry, then pressed together again and repacked.

The morning after my return from Mount Sarmiento was beautiful at Sandy Point, where the sun shone brightly and the air was cool as on a May morning in England. Church bells rang just as they ring in Italy. It being New Year's Day, places of business were closed. I rode out with Meredith southward, along the shore of the strait, where soft tracks and fine stretches of grass invited horse and man alike to gallop. Soon after leaving the town behind, and all the straggling slips, work buildings, boathouses, and other upstart industrial edifices dotted along the shore for a mile or two, nought remained but the forest on one hand and the dancing waters on the other. The distant mountains were not visible, for the storm-cloud still hung over them as when we were there. The forest is a gaunt, scorched wreck, destroyed by a great fire some years ago, and has not yet begun to grow again.

The barkless trunks and branches of the trees stand out white against the dark ground, like tortured limbs held forth in frightful supplication

to the indifferent heavens. Here and there a patch of trees, by some freak of eddying wind, escaped the conflagration, but such cases were rare. The burnt area extends for miles, and stretches far back from the shore. Where it ceases there stands a sawmill; further on another—the goal of our ride. It was kept by Scandinavian settlers, who entertained us with the solidest of lunches. We were not the only casual visitors. There was quite a row of horses tethered up to the railings, and we found a merry company assembled inside. The house was of the simplest, and the furniture rough; but the welcome hearty. The weather had been growing finer to the southward, and now a white flush in the far distance came from the base of Sarmiento, and the peaks by Admiralty Sound were clear. But the changefulness of the climate soon asserted itself. Rain poured in torrents when it was time to ride back; but no one of our gay galloping dozen paid any attention to the deluge, a matter of too frequent occurrence to be noticeable.

Once we were soaked to the skin, the effect of riding through the wet air, as through outskirts of a cataract, was most exhilarating—rain dashing in our faces; the gaunt forest on one hand, the calm sea on the other. Approaching Sandy Point, I was conscious of a strange roaring sound. It was the ding and splutter of the rain upon the iron roofs of the houses.

Sandy Point and its environs were well enough for a day, but what every visitor there chiefly wants to see is the "Camp," the boundless pampa stretching away from Magellan Strait hundreds of miles to the north—a great land of the future, which in time to come cannot fail to support a large and vigorous population. Into the "Camp" accordingly I determined to ride for a few days, and was fortunate in finding for my companion a fellow countryman, Mr. F. H. Townsend, a resident at Sandy Point, whose main work at the moment was drying the *Metaura's* fleeces. Someone was also kind enough to lend me an excellent pony, an opinionated beast, who had the reputation of taking its master where it pleased when out for a ride, so that an engagement to a lawn tennis party in one direction sometimes resulted in a visit to some house at the opposite end of the town.

A reference to the Admiralty chart will show that Sandy Point stands at the edge of a tongue of land separating Otway Water from Magellan Strait. I had supposed that it would be an easy matter to ride over the low hill behind the town, and at all events come in sight of, if not actually reach, the edge of this remarkable enclosed gulf, only eighteen miles distant from the town as the crow flies. Some day, perhaps, a road will be made across. At present the forest forms a pathless impediment. He that would ride into the interior must travel along the margin of the trees. The forest, in fact,

is a geographical feature of prime importance, like mountains or rivers, and its edge should be definitely marked on the map. Where such forest exists movement is impossible in any rapid sense. The limit of forest and pampa at the present day practically marks the division of land and water not so very long ago. The pampa region near Sandy Point begins where the low, and in some areas swampy, plain stretches across at the foot of the hills, and marks the former connection between Otway Water and Magellan Strait. The outline may be roughly drawn from near the point where the 33rd parallel of latitude cuts the west coast of Magellan Strait, and carried thence in west-north-west direction to the north-eastern extremity of Otway Water. North of this line low scrub and a few scattered trees will be found here and there on patches of rising ground, but otherwise the country is all grass land. South of the line, except close along the margin of the water, all is forest.

We had to begin by riding for sixteen miles near the seashore before we could turn inland. Leaving the town by the north road, we followed for some distance one of those splendid stretches of a future great highway, a hundred yards wide or more, which the modern new town lays out for posterity. The barbed-wire railings on either hand were evidence of modernness, but the wandering horse-tracks, two or three dozen in number, irregularly running side by side over the

short grass, whimsically merging into and diverging from one another, were of an essentially antique character. The other day, on the downs near Winchester, I observed the deep furrows of just such an ancient way, now all grassed over and abandoned; and I have read that the old Indian routes in all parts of Patagonia may still be traced by their multitudinous parallel tracks, sometimes many score in number. The race-course was left behind, and the tracks led on. We touched the sea-front at the village of Chubuco; we cut across a low boggy promontory on which stands a beacon, and then were constrained by the forest to the actual beach, a narrow stony belt at the foot of a little cliff. Here in stormy weather the waves eat the earth away, and landslips are of constant occurrence. Trees fall with the earth on which they grow, and their broken trunks and branches litter the shore or hang upon the cliff. Others impend overhead, about to give way at the next provocation. The tide was high, leaving little room for our passage along this rough portion of the way.

The timber hereabouts is larger than that of the more westerly forests which I had seen. It was not, therefore, surprising to come upon a big sawmill busily employed in shaping wood for the rapidly multiplying buildings of Sandy Point. A vessel, moored a quarter of a mile from the shore, was taking in the lumber, which was towed off to



her in rafts. A little further on the track turned into the forest, up a lovely glade, a lonely spot where highway robberies sometimes occur. Then came some lawn-like openings in the failing wood, where we missed our way; but by a fortunate chance, after passing between a fresh water lagoon and Laredo Bay, we stumbled upon a small farm-like building called the Cape Negro Hotel, an establishment with a future, for all its present insignificance. Its surroundings are beautiful: a fair lagoon near at hand in the lap of the green earth, forest arms embracing it, and the sea with its grassy margin near at hand, beyond all comparison the best site for a golf club I ever saw.

And now came the pampa—the wide, boundless pampa—so free and fresh after the forest, with wind sweeping across it and clouds scudding along overhead. Even the horses caracoled for joy as they felt the soft turf beneath their feet. We broke into a gallop for a mile or two, and rode along shouting with delight. We put up half a dozen foxes of the big, slow Magellan type, which you may ride down in five minutes. Soon we began to see traces of the barbed-wire sheep-fence stretching away for miles, on no immediately comprehensible plan, and rarely interrupted by gates. About twenty-five miles from Sandy Point came a dip in the ground, with the bed of an almost dried-up stream in the bottom of it—Fish river, emptying into Shoal Haven behind Elizabeth

Island, a few miles eastward. There was shelter from the wind; there was rich young grass for the horses on a patch of ground almost surrounded by the meandering stream; there was water to drink. We loosed the girths of the saddles, fastened the lassoes to convenient shrubs, spread the contents of our well-furnished saddle-bags upon the ground, and lunched. The sense of freedom, the absence of all care, is never so keenly felt as in an open riding country practically untamed by the hand of man.

Whilst we were still loitering, there appeared on the scene an Englishman, probably a runaway sailor. He was lightly clad, and carried no baggage whatever, nor any coin in his pocket, his sole possessions being the few clothes he stood upright in. He knew nothing about the country, nor so much as one word of Spanish. A dim understanding, that somewhere inland there was work to be had, sufficed as an incentive to his vague tramp. In all these respects he was by no means singular, but a type of the light-hearted, irresponsible wanderer that may be encountered everywhere on the margins of civilisation. When I thought of the elaborate foresight of an educated explorer, his relatively large expenditure in careful preparation, and the perhaps exaggerated meed of praise and fame of hardship with which his performances are rewarded, I could not but feel some shame in the presence of the ignorant pluck and blind self-

confidence of this waif, drifting out into the unknown, fearless, if only from consciousness of his poverty and the valuelessness of his rags to any other human being. A Canoe Indian would scarcely have found him worth knocking on the head.

He strolled up to us and asked for work, or if we knew where he could get any. He had heard there were sheep somewhere and something to be done with them; but had already been two days on the way, without any food to speak of, or sight of a sheep. After replenishing the gaping void within him, we turned his face in the right direction, and told him whereabouts the sheep-farms were. Doubtless he wandered on from one to another, getting food and shelter for the night in a barn and going on the next morning, till somewhere near Last Hope Inlet perhaps, or over the Argentine frontier, he found a job and was set to the dipping or shearing of sheep. An educated person, wandering as he was, would have been apprehensive by the time he met us, and delighted at the good fortune of stumbling on a meal; but he experienced neither emotion, apparently foreseeing no troubles and enjoying no reliefs. His bringing up and the lines in which his life had been cast had induced in him an insensibility, in effect not dissimilar from the equal mind which it is the highest aim of philosophy to generate. The only criticism he had to make upon the circumstances

was confined to the statement that he found it "a beastly long day," and wished he knew where he was going.

Mounting our rested steeds, we climbed out of the hollow by a very rapid slope and continued our ride over the pampa. The ground was not absolutely flat. Low blue hills were visible in some directions, snow-topped mountains in others. We put up many snipe, started several foxes, and frequently saw wild geese. The track presently divided, and I suppose we took the wrong turn. A few miles on we came in full view of Otway Water, stretching away on our left like a great lake, surrounded by forest-clad slopes, except at our end, where it merged through swamp into the pampa. The hills along its north-west shore rise above the snow level and appeared to carry glaciers. A few days later we saw them from another point of view, clear of cloud, a beautiful setting to the calm water. The ground over which we were riding had evidently only been elevated above sea level quite recently. A raised beach, not far away, marked the previous, though geologically recent, stage of elevation, and there were other raised beaches at still higher levels. Here and there big boulders lying on the ground were proof of the transporting agency of ice. They were doubtless dropped by icebergs floating away from the inland glaciers when this belt of land was submerged and Otway Water communicated with the north branch of

Magellan Strait. | To our right was visible the Cabeza del Mar, a branch of Peckett Harbour. Between these sheets of water the beautiful pampa swept away in great stretches of colour—yellow, pink, and green—to the bluest hills conceivable. It was really a lovely view, that changed but little as we travelled along. We often came in sight of tarns and lakes of various sizes, some fresh, others salt; but, though we kept a sharp look out, we could perceive no sign of human habitation.

Evening was coming, the horses were tired; and we began to think that we might have to spend the night in the open. A long, high barbed-wire fence prevented us from striking off in the direction where we imagined Otway Station to lie. The proper way to negotiate one of these fences is, of course, to lower it by drawing the wires together with a cord, throw a coat over to make the fence visible, and then jump it. / But this fence was far too tightly strung and too high for any such procedure. We looked along it for a mile ahead without seeing a gate, so we turned to follow it back, thus ultimately hitting on the proper passage.

We now rode through a great flock of sheep fattening on the rich young grass. The pampa bears grass of two kinds—long wiry tussocks, with short grass between—a fortunate provision of Nature, for in the heaviest winter snow-falls the long grass still emerges and affords the sheep a sufficient, though somewhat scanty, sustenance.

In spring time, when the snow has melted away, the short grass grows strongly, and the sheep confine their attention to it and thrive exceedingly. Numerous shrubs and other tufted plants, such as the white-blossoming *fachin* bush, grow profusely in some places, especially on the more broken ground. It was through such a pathless area that we had now to press forward. "My horse," in the words of the immortal Coryat, "began to be so tiry that he would not stirre one foote out of the way, though I did even excarnificate his sides with my often spurring of him." Luckily we blundered up against a second gate at the far side of this large enclosure, and then into the cart-track that we ought to have followed all day. It led us, a little after sundown, to the farm we were seeking, where a hearty greeting was extended to us by Mr. Saunders and his wife and family. Our horses were turned loose into a great wire-enclosed paddock, one square mile in extent, to wander as they pleased, and we entered the corrugated iron house and found ourselves suddenly surrounded by all the solid comforts of an English home.

Mr. Saunders was one of the first to take up land for sheep-farming in this district about fifteen years before. He showed me the little hut which was his first shelter, and described the various stages by which his present more commodious abode was agglutinated. The last improvement was the railing in of a bit of ground intended for

a garden. The plants, however, that grow there must be uncommonly hardy. In line with the house were various farm buildings, cart sheds, carpenters' sheds, and the like. Opposite to these, in a hollow about a quarter of a mile away, is the sheep establishment, opening on to two or three relatively small paddocks. The first thing to be done in starting a sheep farm is to surround the whole area in occupation with a wire fence. As the sheep increase the area must be subdivided, for it is necessary to separate the sheep into flocks of about two thousand, which can be handled independently, so that a flock that has been dipped against scab may be separated from one not yet dipped. Subdivision, in fact, is the principle of the whole organisation of the farm work. Without it all would be chaos.

Most of the time of my stay was devoted to making acquaintance with the sheep industry, which I examined, not merely at Otway Station, but at less elaborate farms further north. The sheep, I believe, are of the Norfolk breed, similar to those that thrive in the Falkland Islands. They are troubled by scab, but as yet by no other epidemic disease. Scab, of course, greatly diminishes the amount and value of the wool, and must be persistently fought by repeated dippings in solutions of tobacco or other disinfectants. Immediately after the sheep are shorn they are thoroughly dipped and turned out into a paddock. A fort-

night or so later they are dipped again before being led to remoter pastures. In all they are dipped four or five times a year.

Shearing was going on busily during my visit. I spent many hours in the shed amongst the motley assemblage of workmen, gathered from all directions, many of them quite new to the business. Mr. Saunders has set up the most recent shearing machinery. The sheep to be shorn are driven, two thousand at a time, into a small enclosure which they just fill. A wicket gate is opened on to a narrow passage, and the sheep flood in, like so much liquid flowing into a trough, till the passage is full. By a gate at the further end they are admitted twenty or thirty at a time into a pen inside the shed, the whole process being accompanied by a deafening chorus of *ba's* which, uniting with the noise of the machinery, makes it necessary for a man within the shed to shout into his neighbour's ear if he wishes to make a remark. The shearers stand in a row down each side of the shed, under the two long parallel axles set in motion by bands from the engine in the centre of the buildings. Each man holds a clipper, operating at the end of a flexible arm. A rotating flexible core, protected by a spiral spring, works the clippers, and the shearer has merely to hold them in his hand and pass them over the body of the sheep, when the fleece flies off as though it were being brushed away. The shearer stands up and holds the sheep



approximately in the position of a dog begging. He begins by shaving its belly and the inside of its legs before tackling its back. Most sheep kick and struggle so violently that the shearing process must be fatiguing for the men. The more skilful the operator the more quiet will be the sheep. One blundering new hand that I watched spent most of his time wrestling in a most amusing fashion with recalcitrant animals, which more than once brought him to the ground. The shearer receives a ticket in exchange for each fleece, and draws pay according to the number. Each fleece is rolled up separately and thrown into a box-shaped receptacle, lined with a Dundee jute sack. When the receptacle is full the contents are rammed tight by hydraulic pressure, which squeezes the cover down at the same time and bends the iron ties into position. It only remains to fasten the ties, and the bale is complete.

The sheared sheep are deposited one by one in another pen and emptied into another passage, where they are marked. Its only exit is through the dipping trough. They hate to be dipped, and violently struggle to avoid it. But one by one they are forced on to the slippery inclined plane, with a smooth wall of boards on either side of it, down which they inevitably slide and fall head over heels into the deep trough. A man standing by with a blunt fork catches each in turn by the neck and pushes it under two or three times, the sheep mean-



**SHEEP-SHEARING BY MACHINERY  
AT OTWAY STATION.**



**FITZROY CHANNEL FLOWING  
OUT OF SKYRING WATER.**

*To face p. 224.*



while swimming as best he can towards the far end, where his troubles are over. He emerges into one of two or three small enclosures paved with a gently sloping floor of wood, where the drippings of the precious wash trickle off and flow back into the trough. When one of these enclosures is full, and the sheep in it are fairly dry, the gate is opened into a paddock, and the flock are allowed to graze.

The busy time for a sheep farmer is, of course, the shearing season in the summer. Once a flock has been turned out to graze in the particular railed-in area given up to them, they require little attention. It is only when they have to be rounded up and driven in for the dipping that much labour of men and dogs is called for. Boundary-riding along the fences, to search for and mend the breakages which constantly occur, and to collect sheep that may have wandered through them, has to be repeated at frequent intervals. The main oversight of the farm was done by Mr. Saunders and two young English assistants, admirable specimens of healthy humanity. Carting the wool down to Peckett Harbour, the nearest point whence it can be shipped, and carting up all manner of necessary supplies from the same place, keep another set of men busy. The only local commodity is mutton. Every other article of use or consumption has to be fetched either from Sandy Point or from remoter places.

"Who is your grocer?" I asked Mrs. Saunders.

"The Army and Navy Stores," she replied.

Doubtless before very long Sandy Point will be so developed as to become a sufficient source of supply for all this part of the country. Roads will be made, coaches will run, and transport will be easy. But as long as goods have to be brought by boat and landed on the open shore they may just as well come direct from Europe as from a Sandy Point store. Mr. Saunders owns a great deal more sheep land than merely Otway Station. He has taken up large tracts across the Argentine frontier in southern Patagonia. The annual increment of the Otway flocks are driven off to these new lands, where machine shearing establishments will some day be established, till the ovine population reaches the full capacity of the country. At present many of his Argentine flocks are annually driven down a distance of eighty or a hundred miles to Otway Station to be shorn.

I have spoken thus particularly of Mr. Saunders' establishment as typical of the best new sheep farms in this region. All the land is now taken up south of the Chilean frontier, and is mostly under sheep. Suitable lands on the Argentine side are likewise taken up, and the immigration of sheep goes rapidly ahead. In Last Hope Inlet a wool port has been established; and even fifty miles farther north, near Lake Maravilla, a young Englishman has successfully started a sheep farm.

I was anxious to ride up and visit him, but time did not allow. The trip would have involved five days' hard riding. His house looks out upon a glacier that shoots icebergs into the lake. His nearest neighbour lives forty miles away. Before Christmas he had paid a visit to Sandy Point and had carried back in his saddle-bag a copy of Stevens' book, "With Kitchener to Khartoum." The battle of Omdurman was fought on the 2nd of September, 1898, and before the 2nd of January, 1899, the full story of the campaign had been written in the Soudan, printed, bound, and published in London, exported to Magellan Strait, and carried up to the remotest point in Patagonia—a remarkable instance of the shrinking of the world in our own days.

At a Frenchman's sheep farm, some ten miles from Otway Station, I saw sheep shorn by hand in the old-fashioned way. The process is much slower and far more cruel, for most of the sheep were badly cut. I also visited a small cattle ranch belonging to a Chilean, a very tumble-down and retrograde affair. The lands covered with trees and thickets are unsuitable for sheep, but do well for cattle. Probably much of the forest region will be turned into cattle land, beginning first at the edge and working gradually in. Mr. Saunders and other sheep farmers in the neighbourhood have recently turned their attention to horse breeding. A paddock near the house

at Otway Station contained some thirty mares and a good many colts, which seemed to promise well. For some time to come Mr. Saunders will have employment for as many horses as he can breed ; and the local demand for horses will be great for many years, as the country increases in population and prosperity. At present, therefore, there is no export of horses, but an import. Nor are sheep exported. Ten or fifteen years hence, perhaps, a frozen meat trade will arise between Sandy Point and Europe.

At present wool and a little gold are the only exports from Fuegia. I came across no gold prospectors, but heard much about them. There are several men picking up a comfortable living by washing alluvial gold at sundry places in Tierra del Fuego and Patagonia. It is exported at the rate of £1,000 a month or more, and nothing would be less surprising than to hear of some great find.

The policies of the Chilean and Argentine Governments in respect of lands for settlement in southern Patagonia have not been the same. In Argentina the southern sheep lands were cut up into ten kilometre squares, each square thus containing about thirty-five square miles. The freehold of these was sold by auction.\* Chile,

\* *Vide* "Plano Topografico y catastral de la parte sud del Territorio de Santa Cruz, levantado por el Agrimensor Carlos Siewert," Buenos Aires, 1898-99, which records the names of the proprietors and the areas they hold, and indicates the lands still unsold.

on the other hand, leased its sheep lands at a very small rent the first year, but gradually rising in proportion to the assumed growth in value of the properties. The leases are to run for a period of years, fifteen to twenty I believe, at the end of which time the lands will be sold by auction with all the fences and buildings upon them, the leaseholder having the option of purchase at the upset price. This system, eminently adapted to meet the needs of farmers of small capital, has proved a great success. Under it the whole of the Chilean sheep lands north of Magellan Strait have been taken up; and quite recently an English company has rented a great area on Tierra del Fuego, one degree of latitude from north to south, capable of affording pasture to at least half a million sheep.

Anyone who has read the story of the boat expeditions made by the explorers of the *Beagle* will remember how they rowed up Jerome Channel into the great basin of Otway Water, followed along its northern shore for nearly sixty miles, and discovered the mouth of the narrow Fitzroy Channel, through which a violent tide-stream flowed. Entering it at the flood, they navigated its tortuous course, and gave to the bluffs that overlook it from the east the name of Beagle Hills. At the north end of the channel they were surprised to find another large sheet of water, stretching away westward. They followed onward, explored the north coast of this new basin, and observed at



its extremity two fiords stretching away to undetermined lengths. They named the basin Skyring Water, after Lieutenant Skyring, its discoverer. In no part of the world does the sea ramify into the land with such labyrinthine complexity as here. It is impossible for any person possessing the soul of a traveller to read the story of Skyring's boat expedition and not desire to visit so remarkable a region. Years had passed since that desire seized me, and now that I was at Otway Station I decided not to lose my chance.

One morning, therefore, Mr. Saunders, Mr. Townsend, and I rode away with well-filled saddlebags to gratify my wish. Crossing a paddock or two, we came to the edge of the raised beach overlooking Otway Water, whose surface was speckled by the wind. The snow mountains were covered by cloud, but elsewhere the sun was shining, and the spaciousness of the scenery matched the exhilaration of the air and the joy of swift movement over the springy turf. Ahead there came presently into view the mouth of a wide valley wherein I recognised that Fitzroy Channel must run. Has the reader ever chanced to know much about some person he has never seen but in whom he has come to take great interest? The day arrives when they are to meet. A mental image is to be exchanged for direct vision. Will the two agree? It is an interesting speculation. Not otherwise did I feel at this moment. I was almost

ridiculously anxious to obtain sight of Fitzroy Channel. We passed some considerable lagoons. Near the mouth of the valley the open pampa gave place to scattered trees and clumps of robore. Here, in a sheltered spot on a patch of smooth grass, shadowed by trees, a halt was made for lunch. We lay awhile in the sunshine, smoking our pipes and watching the white clouds drift high over the tops of the Beagle Hills, while our horses grazed around and birds chirped in the trees. Others had used the same resting - place before, for I picked up a stout knife under a bush, but honestly paid for it by forgetting my own at the same place.

On we rode again along a slanting track over the rough ground that gently dipped towards the channel. As the land has been raised, the swift waters have cut it down and now flow in a gully at the foot of bush-covered slopes of varying height, sometimes steepening into little cliffs. We came suddenly to the edge and beheld at our feet what seemed like a swift-flowing river a mile in width. Scrambling down to the shore, near a shepherds' settlement, we followed along it to the west, keeping close to the water. If Fitzroy Channel looks like a river, its margin is as unmistakably seashore, strewn with seaweed, driftwood, and shells, and sometimes encumbered by rocks. The shore strip is very narrow, and in places even quite covered at high water, so that there is little

choice of route. The track is often most irregular, making progress of necessity slow. After thus picking a way for a few miles, I could no longer restrain my impatience. Tying my horse to a bush, I scrambled through the dense scrub over a series of irregular mounds and small tortuous hollows to a commanding eminence where a striking scene burst upon my gaze.

Immediately at my feet was the end of Fitzroy Channel, opening out into the great expanse of Skyring Water, whose gentle shores, once deeply submerged, sloped back to the snowy ranges far in the west, that looked down upon the branch of Last Hope Inlet, named Obstruction Sound. To the N.N.E. a wide flat valley stretched far away, leading to Lake Blanco and on to the Argentine sheep-lands. It is entirely taken up by sheep-farmers, more than one of whose stations I could identify through the field-glass. Beagle Hills limited the distant view on my right; the wooded hills of Ponsonby Land closed it on the left; the swift-flowing tidal channel immediately below disappeared round a corner about a mile away. In the northern shore of Skyring Water is an abandoned coal-mine. The dense forest behind it is occupied by wild cattle descended from escaped domesticated animals. They are said to thrive, and the day will undoubtedly come when cattle ranches will be pushed all over the district.

A violent gale of wind was blowing down from the north, else I should have been tempted to spend an hour or two at this spot, with its characteristic Patagonian view of water, pampa, forest, and distant mountains. As things were, however, I was soon back beside my horse.

Where Fitzroy Channel emerges from Skyring Water, on either hand are two sheep stations, one over against another, with a ferry between them. The one on our side will some day grow to be a village or perhaps a town, for it is the natural centre whence the roads diverge to north and west. At present it boasts a store, a wool warehouse, and two jetties. The wool from all the surrounding country is brought together at this point and periodically shipped away on little steamers, down Otway Water and Magellan Strait to Sandy Point. To gaze over the wide stretch of country here beheld on all sides, and note the various diverging tracks as yet but faintly marked, and the cart ruts but recently (and for the first time in the world's history) pressed into the soil, was like looking into the future. Just so in prehistoric times were the great highways of Europe, even the streets of London, begun. Some day these faintly-marked footsteps of pioneers will be important routes. Perhaps before very long a railway will run beside Fitzroy Channel from Sandy Point into the heart of Patagonia. I felt it good to have been here before such developments take place, to have beheld these wide and

beautiful lands as nature made them, with all their asperities unsmoothed and their crookedness unstraightened, dappled as they were just then with sunshine and shadow, and presently swept over by besoms of fertilising rain from the north-west.

Home-staying folk think of this land of the future as far away, and of the dwellers there as exiles. To my thinking it is the townsmen of Europe who are the exiles: the pioneers the people dwelling at the centre of the world's life. The townsman possesses the small experience of one who dwells in a house and goes to an office. He touches the wider world only through written media. Where he takes his holiday he creates towns. He turns the seashore into watering-places, and fills the Alps with "mountain resorts." He binds these resorts together with railways, and surrounds them with smooth paths, leading each one to its particular restaurant or hotel. Thus pure nature shrivels away before him and each generation of townsmen knows less of her freedom than the one that went before. Call upon a townsman to sleep a single night in the open and he probably lays the foundations of a fatal disease. Turn him adrift in a pathless country and he is nonplussed. Make a soldier of him and set him to fight a mere ignorant Boer, he tumbles straight into an ambush, or becomes hopelessly mazed in any country that is not a flat plain. But for

occasional wars our town-dwelling folk would become utterly worthless except as men of business. Sentimental philanthropy poisons their judgment of the laws of life. They lose touch of realities and sink into the mere ruts and sloughs of civilisation. It is they who are the real outsiders.

But the youngster who goes forth to the wider world and herds sheep in Patagonia, or cattle in the Far West ; who washes gold at Klondyke, or prospects in Rhodesia ; who helps to build the Uganda Railway, to plant tea in Assam, or to farm in British Columbia, every two or three years re-visiting for a month or two the city of his birth, comes to know far more of life and conduct, and the things that are really worth knowing of the world, than does the average town-dweller, with his imitative fashion of doing and being, his conventional lights, his habitual stupidities, and his trumpery ideals. The remotest place in the world is now so accessible that the products of the press can be received anywhere quite as soon as a busy man need care to get them. The pleasure of receiving only a weekly newspaper at irregular intervals, instead of a series of hysterical special editions every hour or two of every day, is worth travelling far to experience. The mere saving of time amply compensates for distance, so that I am no longer surprised, when in the remotest places, I find individuals who, in all essential respects, are better read and better

informed than the corresponding class of man would be at home.

It is not merely that the pioneer is likely to select with care the books he sends for, and to read them with attention, but that he brings to his reading a more alert intelligence and a wider experience than the ordinary townsman can command. The English bookseller in Valparaiso has a better stock of books than would be found in the corresponding shop in any except the largest English provincial or University towns; yet he caters for a small number of readers. The one lack that remote civilised settlers experience is the lack of arts, other than literary. It is often quite pathetic to see the poor little chromo-lithographs or prints from illustrated papers wherewith they seek to decorate their simple huts. If a young water-colour painter would venture forth to these remote places, I feel assured that he would not only meet with a boundless hospitality, but also a fair market for his work. Music, of course, is practically silenced, save for an occasional banjo, thanks to the pernicious habit which has grown up among town-dwelling amateurs of always learning the piano (essentially a professional's instrument) instead of something simpler and more portable, such as the guitar. The piano has killed song in its old fashioned universal form, and is drying up the vital springs of music, outside the large centres of population. Where a century ago,

the guitar and the human voice would have been heard, there now grinds forth the hideous resonance of the graphophone, with the latest blatant music-hall ditty, once shouted against its diaphragm by some vulgar brute.



## CHAPTER X.

### HOMeward BOUND.

I RETURNED to Sandy Point in time to catch the Pacific mail steamer *Orellana* for Liverpool. The hour and even the day of her arrival were quite uncertain. When all the luggage was packed and everything ready, I spent the afternoon playing lawn tennis at Townsend's, with one eye constantly turned to the horizon on the look-out for smoke. It was not, however, till dark night came on that the expected vessel arrived. We hired a boat, and were just about to embark, when a posse of police came down and stopped us. They quickly passed my two Swiss guides, but holding a lantern to my face they said to one another, "This is the man." Fortunately the captain of the port, who knew me, soon arrived and released me with many kind apologies, after explaining to the police that I was not the absconding bankrupt they had taken me for. The sea was absolutely calm, as good luck would have it, and the long row out was a pleasure. I took leave of Meredith and other friends, who had come on board to give me a *bon voyage*, and was fast asleep when the ship sailed at 1 a.m.

In the morning we rounded Cape Virgins. Tierra del Fuego soon vanished below the horizon. Four days' sailing over a calm sea brought us to Monte Video and comfortable hot weather. In one or two respects the homeward voyage was pleasantly unique in my experience, thanks to the energy of Mr. Archer, the captain of the ship. On most ocean liners the passengers are left to organise amusements for themselves. On the *Orellana*, at four o'clock every afternoon, the ship's bell sounded, and the captain and all the officers off duty turned out to play cricket till dinner time. A vigorous game supplied the needful exercise, without which in tropical climates one soon grows slack at sea. Better than this, after leaving Monte Video, a swimming bath was built up on the for'ard well-deck, between the port bulwarks and the fore hatch. It was about six feet deep. The port bulwarks and the foc'sle bulkhead, lined with skids, formed two of its sides; the other two were likewise built up with skids, shored off to ventilators and hatch-combing. The bath was lined with canvas, battened down to the deck at the foot all round. It was kept full by the hose and could be emptied by opening a tap in the corner. A sail cloth curtain was hung around it, and it was roofed over with the same material. It was filled every morning from six to nine and formed a most agreeable feature of a delightful voyage. Every ocean liner that traverses the tropics should

copy this invention of the vigorous captain of the *Orellana*.

Of course, in a heavy sea the bath could not be used, but we had no heavy seas. From day to day we steamed over calm waters, through warm airs. Sometimes, as off Fernando Neronha, the ocean was like oil. Night after night the sunsets were gorgeous, the incandescent west mirrored in a sea of glass and fire. Eight days out from Sandy Point, I came early on deck, as we were approaching the entrance of the world-renowned Bay of Rio de Janeiro. On our left were jagged hills, with great precipices, striped with innumerable vertical lines; suavely outlined wooded hills were on our right; below was haze; flecks of mist hung on the hill-fronts; the summits swam in the soft transparent air. Ahead, the wonderful Sugarloaf Hill rose from the calm waters—a strange and beautiful form, with a steep smooth face on one side, and bulging up on the other from a rich forest bed. Rounding its base we beheld the noble mass from every point of view, always surprising. Thus we came in front of the Corcovado Hill, necklaced with changing mists, its fine cliff rising above velvety forest, with other forested hills behind.

After passing between the two gateway forts, the lovely suburbs of Rio came full into view. Bright villas sparkled in the midst of gardens and the most graceful palms, with the calm water

for foreground and the strangely shaped hills in their soft mist-draperies behind. What a site for marble palaces and temples were this, where white-washed villas looked so fine! Much of the glory of the view came from the wondrous atmosphere, much likewise from the unusual and great variety of the surrounding hill-forms. The volcanic peaks around Aden are weird and beautiful, but barren as the moon. The hills of Rio, no less unusual, contrast their straight faces with luxuriant slopes. I thought of many another beautiful port and bay which it has been my good luck to see: of Panama, in its ring of hills and islands, and towering walls of glowing cloud; of Naples, no less fair, with graceful Vesuvius and the island gem of Ischia; of Bombay, and its many-islanded harbour; of the Golden Horn, with its dazzling beauty and rich human story; and of murky London Pool and its smoky glories. If Rio is not more absolutely beautiful than all of these, it is at any rate more surprising, more theatrical. Its elements of beauty are those that poets and painters have chosen for their ideal lands. Rio looks like a city of romance. It is hard to believe that its inhabitants live the ordinary human life of business, where nature herself invites to everlasting play.

On landing I was pleased to find the brutal architecture of modern practical life markedly absent. The whitewashed walls were often decorated with coloured tiles, or at least with their

painted simulacra. Fragments of rude sculpture were not infrequent on the house fronts. Arches and arcades, casting bold shadows, were common. Rio is a town of much architectural variety and hardy experiment. Things are allowed to fall into picturesque disrepair. Even the ruined pier becomes decorative when used as a perch for countless birds. Except in the very heart of the town, the houses stand among palm trees, yellow and crimson flamboyants, and a perfect conflagration of flowers. The poorer classes of the people are picturesquely ragged, and even the beggars pursue their calling with a sense of art. They do not ask alms humbly or with shame, but declaim their miseries aloud, and demand help with passionate entreaty.

✓ I fully realised that the perfection of Rio Bay can only be perceived by a person looking down upon it from some of the surrounding heights, the summit of the Sugarloaf being evidently best situated. Time failed for any such excursion, so I was content to wander in the town and lunch at the Botanical Gardens, world-renowned for their incomparable avenues of palms. The main avenue is the most architectural thing in nature, so regular are the round smooth tapering trunks, with their marked *entasis*, and the graceful spring of their lofty crowns nearly a hundred feet above the ground. Unfortunately it was not the time of blossom, but the bright butterflies compensated

for the paucity of flowers in the garden. The luxuriance of foliage and the beauty of the surrounding hills was so overpowering that no sense of lack was felt. I lunched with a friend under the shade of bamboos, and enjoyed an unwonted sense of wealth on paying a bill that was reckoned in thousands. Millions are nothing in Rio. It takes a day or two to realise how infinitesimal are the monetary units. My dream of a doubtless unreal Brazilian paradise was perhaps fortunately brief; we had sailed again before there was time for an awakening. Life in Rio can doubtless be lived as sordidly as anywhere else, though it is dignified by pestilences innumerable. But I saw nothing that was not fair, beautiful, and of good report; so to me Rio remains a fairy city, the capital of my kingdom of Romance.

We sailed on over summer seas, one day like another, save for occasional bursts of fire and boat drill and the like small diversions. One night we passed our sister ship, a glittering beauty like a near cluster of stars, spelling out her name in coloured rockets across the moon-track on the rippled sea. We looked into barren St. Vincent of the Cape de Verdes, and came into rough weather when passing close under the red cliffs and redder waterfalls of Palma of the Canaries. On the fourteenth day from Rio we entered the Tagus and anchored below Lisbon, off a pretty Moorish Castle. Here Maquignaz and Pellissier joyfully  
TxU

landed to travel home by rail. Pellissier was quite recovered from his frost bite, so that I could bid him farewell without misgivings. We lay for twenty-four hours coaling, in rather rough water, for a gale of wind arose and so jostled the barges about that it was difficult to put the coal on board.

As night fell, we steamed away seaward. Our party was quietly sitting in the smoking-room, apprehensive of nought, when without warning there came a terrific crash. The ship groaned and shivered in every plate, as though she were breaking up. We were shaken from our seats. An immense mass of water smothered the whole ship, reaching even up to the captain's lofty bridge, as we were afterwards told. A second and a third great sea followed, as we crossed the bar, and then we came out into the mere tumble of the gale. The ship had indeed been for a moment in some peril. The first great sea curling right over the bows had descended with monstrous force on to the fore-deck and might have burst in the hatches, but fortunately they were protected by a great pile of skids. It cleared away all the ventilators, twisted iron stanchions about as if they had been so many leaden pipes, and crashed against the steel wall of the main deck-house, bulging it in and smashing the wooden panelling and fittings of the end cabin within it. One or two of the sailors were carried off their feet and knocked about, but

fortunately without serious injury. This was the last adventure of the voyage. Once rounded into the Bay of Biscay, heading for La Rochelle, the following sea hardly rocked the ship. A couple of days later we passed the Wolf lighthouse in the bright sunshine of a wintry day. The next morning, we entered the Mersey's dingy fog, and soon after were rattling over the muddy streets of Liverpool to the steel highway for London town.





# INDEX.

---

**ACONCAGUA**, 5, 8, 31, 36, 38, 56, 126  
 —, Architecture of, 71, 72  
 —, Ascent of, compared with ascent of Himalayan peak, 93  
 — Camp, Base, 47, 61, 62, 102-104  
 — —, Our first, 63, 73, 78, 100  
 — —, — second and highest, 83, 99  
 —, Cost of ascent of, 118, *note*  
 —, First ascent of, 43  
 —, North-west face of, 63, 71, 72, 83  
 —, Our ascent of, 76-102; to first camp, 76-79; to second camp, 80-85; to the top, 89-98; descent, 98-102  
 —, River, 4, 15  
 —, Shadow of, at sunrise, 92  
 —, Summit ridge, 95-98  
 —, View of, from Valparaiso, 10  
 —, Views of, 25, 32, 49, 83  
 Admiralty Sound, 175, 177, 189, 208, 212  
*Adventure*, H.M.S., in Fuegia, 170  
 Agassiz, Mount, 133  
 Alaskan inland passage, 141  
 Albatross, 151  
 Almacenes, 54, 55, 77, 105  
 Altitude, Effect of, on man, 73, 78, 79, 81, 86, 87, 90, 94, 97  
 Altitudes of American mountains, 42  
 Alumine Valley, 128, 129  
 Anacleto Olavarria, 39, 63, 74, 82, 85, 100, 101, 105, 111, 112, 113, 115  
 Andes, General account of the Southern, 125-135  
 Araucanian Indians, 121, 137  
 Archer, Captain, 239  
 Arco Pass, 128, 129

Arenas, Punta, *see* Sandy Point  
 Argentino, Lake, 133, 134, 154  
 Army and Navy Stores, 226  
 Avalanches, 19, 50, 51  
 — *see* Mountain-falls  
 — of mud, 33, 60  
 Avenue of Palms, 242  
 Azufre Peak, 128  
  
**BAKER CHANNEL**, *see* Calen Inlet  
 Ball, Mr. John, 172  
 Balmaceda, Mount, 134  
 Bankrupt, An absconding, 238  
 Barbara Channel, 160  
 Bayo Peak, 127  
 Beagle Hills, 185, 229, 231, 232  
 — Sound, or Channel, 173, 174, 175, 177, 180, 206  
*Beagle*, Voyage of the, 170, 171, 173, 174, 178, 181-187, 229, 230  
 Bio-bio River, 121, 128  
 Birds, 103, 151, 152, 183, 198, 200, 219  
 Biscay, Bay of, 245  
 Blanco, Lake, 232  
 Blest, Puerto, 130  
 Bode, Dr., 157, 164  
 Bold Head, 152  
 Bougainville, M. de, Ascent by, 181  
 Bouqueron, Mount, 185  
 Bravard Peak, 126  
 Bridge, Natural, at Inca, 33, 34  
 Brunswick Peninsula, 180, 181, 184, 185  
 Buccaneers in the Fuegian Archipelago, 170  
 Buckland, Mount, 176, 189, 195  
 Buenos Aires Lake, 130, 131, 133

- Burn Island, 180  
 Burney, Mount, 158  
  
**CABEZA DEL MAR, 220**  
 Calen Inlet, 131, 133, 144  
 California discovered, 169  
 "Camp," The, *see* Pampa  
 Campanario Peak, 128  
 Canary Islands, 243  
 Cape de Verde Islands, 243  
 Carmen Sylva Range, 177  
 Cascade Reach, 175, 176  
 Castillo Peak, 127  
 Cattle ranch in Patagonia, 227, 232  
 Chillan, Baths of, 37, 121  
 Chiloë, 132  
 Christmas at Sandy Point, 164, 165  
   — Sound, 180  
   — tree, 157, 161  
 Chubuco, 215  
 Churruca, Port, 159, *note*  
 Clarence Island, 172, 185, 194, 203,  
   204, 206  
 Clemente, Mount San, 131  
 Cloué Peninsula, 180  
 Coaches, 19  
 Cochrane, Mount, 133  
 Cockburn Channel, 149, 194, 199, 203,  
   206  
 Collingwood Channel, 158  
 Collon Cura Valley, 128, 129  
 Colouring of rocks, Brilliant, 30, 57,  
   75, 104, 105  
 Concepcion, 120, 121, 122, 127  
 Cook, Captain, 180  
 Cooking apparatus, 46  
 Copahue volcano, 127, 128, 130  
 Coquimbo, 1  
 Corcovado Gulf, 130, 132  
 Cordova, Don Antonio de, Ascent by,  
   181  
   — Peninsula, 160  
 Cornu, Mount, 175  
 Coronel, 122  
 Coropuna in Peru, 42  
 Corral, 124, 136-140  
 Cotton, Dr. E. J., 8, 9, 11, 34, 37, 48,  
   50, 102, 107, 108, 111  
  
 Cough at high altitudes, 86, 101  
 Cricket on board ship, 239  
 Cruz, Mount de la, climbed, 181  
 Cuevas, Las, 29, 108, 112  
   — Valley, 28, 58  
 Cumbre, *see* Uspallata Cumbre  
  
**DAMAS PASS, Las, 127**  
 Darby, Mr. G. H., 34, 41, 111  
 Darwin, Charles, 146, 171, 173, 181,  
   195  
   — Range and Peak, 171, 173, 174,  
     177, 185, 189, 206  
   — Sound, Glaciers in, 173  
 Dawn, A splendid, 91  
 Dawson Island, 176, 190  
 Débris slopes, 28, 72, 80, 81, 90, 93,  
   94, 99  
 De Corde traverses Magellan Strait,  
   170  
 De Rougemont, Mr., 210  
 Desolation Bay, 180  
   — Island, 159  
 Domuyo Volcano, 128  
 Drake, Sir Francis, Voyage of, 168  
 Duncan, Fox and Co., 6  
  
**EATING-BACK, Glaciers, 55; rivers,**  
   128, 131  
 Elias, Mount St., 73, 114  
 Elevation of land in Patagonia, 219  
 Elizabeth Island, 217  
   —, Queen, releases Sarmiento, 169  
 English Narrows, 144, 154  
 Englishmen, Young, expatriated, 165  
 Equipment for Aconcagua, 45, 88, 91  
 Evangelistas Lighthouse, 191  
 Exmouth Promontory, 146  
 Eyre Sound, 134, 146, 153  
  
**FAIRWAY ISLAND, 158**  
 Falcon Inlet, 134, 153  
 Falkland Islands, 157, 222  
 Famine, Port, 162, 193  
   —, —, Foundation and history of,  
   169  
 Fernando Neronha, 240  
 Fish River, 216

- FitzGerald, Mr. E. A., 8, 37, 43, 61,  
71, 73, 84, 85  
Fitzroy, Captain, 186  
— Channel, 184, 229-233  
— Mount, 133  
Flooded torrents, 16, 19, 106, 107, 113  
Flowers in Chile, 14, 15, 119  
Footgear for high altitudes, 88  
Fording torrents, 49, 54, 106, 107  
Forests of Fuegia, 181, 197, 211, 213,  
214  
— of Southern Chile and Patagonia,  
129, 137, 143, 144, 150, 155  
Foxes, 216, 219  
French cruiser, A, 155  
— mission to the Fuegian Archi-  
pelago, 171, 178, 179, 180  
Frontier between Chile and Peru, 1  
— between the Argentine and Chile,  
125  
Frost-bite, 100, 111  
Froward, Cape, 162, 172, 181, 185, 206  
Fuegian Archipelago, 167-209  
Future of Patagonia, 233
- GABRIEL CHANNEL, 175, 194, 205,  
208  
Gallant, Port, 181  
Gardens in Chile, 9, 14, 123, 222  
—, Botanical, at Rio, 242  
Geese, 149, 150, 151  
Geikie, Mount, 133  
Glacier, North, of Mount Sarmiento,  
197, 198, 202, 205, 207  
—, West, of Mount Sarmiento, 196  
Glaciers, Former extension of, 18, 21,  
24, 31, 55, 56, 198  
—, Eating-back, at their heads, 56  
— of Mount Sarmiento, formerly  
ending in the sea, 195  
Gloves, inefficient against cold, 91  
Gold found in Fuegia, 228  
Good Luck Bay, 160  
Gordon Island, 180  
Gosse, Philip, 61  
Graphophone, 237  
Grappler, Port, 146-152  
— Reach, 146
- Graves, Lieutenant, 171, 196  
Guia Narrows, 154  
Guides, Alpine, *see* Maquignaz and  
Pellissier  
Gunboat lent by the Chilean Govern-  
ment, 114, 187  
Güssfeldt, Dr. Paul, 121, 126
- HALE COVE, 141, 144  
Hart, Mount, 194  
Henn, Mr. S. H., 118, 120, 121  
Hermit Island, 178  
Horcones Lake, 49  
— Valley, The, 13, 32, 83, 102  
— —, Landscape of, the upper  
part, 57, 77, 104, 105  
— Valley, Ride up the, 42-62  
— —, — down the, 104-107  
Horn, Cape, 167, 178, 191  
Horse-breeding in Patagonia, 228  
Hoste Island, 178, 179, 180  
Huahum River, 130  
Hyde, Mount, 178
- ICE feathers encrusting rocks, 196  
— Floating blocks of, 153  
— terraces, 63  
Icy Sound, 160  
Inca: Antiquity of the Baths of, 35  
— Lake, 24  
—, Los Baños del, 8, 33-41, 107;  
a good climbing centre, 109  
Indian Reach, 145  
Indians, Alaculof or Canoe, 148, 151,  
191, 194, 201, 204  
—, Araucanian, 121, 137  
—, Onah, 191, 192  
—, Yahgan, 191
- JACKSON, MR. J. F., 190  
Jane, Mount, Climbed, 179, 180  
Jerome Channel, 229  
Julian, Port St., 168  
Juncal, 21, 22, 39, 113
- KASHMIR, Likeness of Chilean land-  
scape to, 16, 117  
Kater's Peak ascended, 178

- Keats Sound, 194, 195  
 King, Captain, 178, 184, 185  
 — Range, 173  
 — William IV. Land, 184, 185
- LA LAJA LAKE, 127  
 Landscape in Chile, 15, 16, 120, 121  
 Lanin Volcano, Climbed, 130  
 Larido Bay, 216  
 La Rochelle, 245  
 Last Hope Inlet, 133, 134, 187, 218,  
 226, 232  
 Limay River, 128, 129  
 Lion Mountain, 18  
 Lisbon, 243, 244  
 Liverpool, 245  
 Llanquihue Lake, 129  
 Llai-Llai, 16, 117, 118  
 Logan, Mount, 42  
 Lomas Range, 176  
 Longavi Peak, 128  
 Lorenzo, Mount San, 133  
 Los Andes, 17, 116, 117  
 Lota, 122, 123
- MCCLELLAND, MR. P. H., 6, 9  
 Magdalen Sound, 172, 185, 193, 194,  
 203, 206  
 Magellan Strait, 142, 149, 158-162,  
 163, 167, 181, 191, 193, 213, 220,  
 233  
 — — —, History of, 167-171, 175  
 Magellan's voyage, 168  
 Magellanes Territory, 163  
 Magill Islands, 185  
 Maipu, 121, 126  
 — Pass, 126, 127  
 Maquignaz, Antoine, 5, 10, 33, 46, 51,  
 59, 61, 73, 89, 93, 95, 98, 101, 114,  
 118, 137, 138, 201, 208, 243  
 Maravilla, Lake, 226  
 Martin, Lake San, 133  
 Mendoza railway, 39  
 —, Valley of the Rio, 28, 35, 36  
 Mercedario, 96, 126  
 Meredith, Vice-consul at Sandy Point,  
 164-166, 187, 211, 213  
 Messier Channel, 131, 140, 141, 144
- Metawra*, S.S., wrecked, 210, 211, 213  
 Minchinmahuida Peak, 130  
 Misery, Mount, 185  
 Monte Video, 239  
 Montt, Port, 129, 132, 133  
 Moraine-covered glacier, 76  
 Moraines, 32, 48, 54, 55, 135, 196, 202  
 — reduced to sand, 55  
 Moraleta Channel, 132  
 Moreno, Dr., 35, 65, 125  
 Mountain exploration, Preparations for,  
 12, *see* Equipment  
 — Falls, 30  
 Mules, 20, 26, 51, 113  
 —, Mr. R. B. T. Townshend on,  
 52-54  
 Music, Modern dearth of, 236
- NAHUEL HUAPI, LAKE, 129, 130, 131  
 Narborough, Sir John, explores  
 Magellan Strait, 170  
 New Year's Sound, 179  
*Nivus penitentes*, 50, 63, 65-70, 104  
 — — —, how formed, 66-70  
 Night, A lively, 22, 23  
 North, Colonel, 146  
 Norwegian inland passage, 141, 142, 151
- OBSTRUCTION SOUND, 232  
 October, Valley of the 16th, 131  
 Ofqui Isthmus, 132  
 Olivaia, Mount, 175  
 Orange Bay, 179  
*Orellana*, P. S. N. Co.'s S.S., 238-248  
 Organisation for mountain exploration,  
 12  
 Orizaba, 42  
 Orlebar Island, 141, 144  
 Otway Station, 220-230  
 — Water, 184, 185, 213, 214, 219,  
 229, 230, 233
- PACIFIC, seen from Aconcagua, 79, 86,  
 91, 96  
 Pagés, Captain, 190  
 Palma, 243  
 Pampas of the Argentine, seen from top  
 of Aconcagua, 96

- Pampas of Patagonia, 214-234**  
**Patagonia, 210, 234**  
 —, a mountaineering base, 129  
**Peckett Harbour, 220, 225**  
**Peel Inlet, 154**  
**Pellissier, Louis, 5, 10, 86, 89, 92, 99, 100,**  
 102, 107, 111, 117, 118, 137, 157, 243  
**Peñas, Gulf of, 131, 132, 140, 141**  
**Penguin Island, 140**  
**Penitentes Mountain, 108, 109**  
**Perrier Island, 180**  
**Peteroa Peak, 128**  
**Philippine Islands, Death of Magellan**  
 at, 168  
**Pillar, Cape, 158, 210**  
**Pioneers, The character of, 234-237**  
**Planchon Peak, 128**  
**Ponsonby Land, 184, 232**  
**Popper, Señor, 173, 177**  
**Porters, Chilean, 38**  
**Portillo, 24, 25, 112**  
**Puerto Año Viejo, 194**  
 — Bueno, 154-157  
  
**QUETRU PILLAN VOLCANO, 130**  
  
**RAFAEL, LAGO SAN, 132, 133**  
**Rainfall, different on two sides of**  
 watershed, 58  
**Rainy Region in Chile, 127**  
**Raleigh takes Sarmiento prisoner, 169**  
**Reloncavi, 132**  
**Revolution of Balmaceda, 3**  
**Rio Blanco, 114**  
 — de Janeiro, Description of, 240-  
 243  
**Rivers eating-back, 128, 131**  
**Road, Ancient Indian, 215**  
**Route down the Continent, North and**  
 South, 2, 35  
 —, Transcontinental, from Buenos  
 Aires to Valparaiso, 7, 14-32  
  
**ST. VINCENT, 243**  
**Salto del Soldado, 19, 108, 114**  
**San José Peak, 126**  
**Sandy Point, 134, 149, 162-166, 188,**  
 189, 209, 210, 213, 214, 225, 233, 238  
  
**Santa Cruz, 134**  
**Santa Ines Island, 160**  
**Santiago, 119, 120**  
**Sarmiento, the explorer, 169**  
 —, Climb on Mount, 201-208  
 —, Cordillera of, 158  
 —, Exploration of Mount, 195-209  
 —, Views of Mount, 171, 172, 177,  
 186, 190, 194, 199-201, 204, 212  
**Saumarez Island, 152**  
**Saunders, Mr. and Mrs., 221-231**  
**Sea, Shipping a great, 244**  
**Sebald de Wert's voyage to Magellan**  
 Strait, 168  
**Sebastian Bay, 177,**  
**Sentry Boxes, The, 179**  
**Sheep-dipping, 224**  
 — farming, Introduction of, into  
 Fuegia, 191, 193, 229  
 — — in Patagonia, 221-237  
 — lands, how sold, in Chile and  
 Argentina, 228  
 — shearing, 223, 224  
**Shoal Haven, 216**  
**Skyring, Lieutenant, 185, 230**  
 —, Mount, 185  
 — Water, 184, 230, 232, 233  
**Sleeping bags, 45**  
**Slocum, Captain Joshua, 149, 202**  
**Smugglers' Pass, 24, 83**  
**Smyth Channel, 134, 141-158, 159**  
**Snow-bogs, 25**  
 — slope crossed by mules, 51, 52  
 — Sound, 160  
**Sorondo Range, 175**  
**Springs, Hot, 33**  
**Stanley, Sir Henry M., 190**  
**Steamers down west coast, 2, 3**  
**Steffan, Dr. Hans, 125, 132**  
**Stokes, Mount, 133, 154**  
**Storm on Aconcagua, 102, 113, 122**  
 — on Mount Sarmiento, 206, 207  
**Sugar good for climbers, 47**  
**Sunset, 74, 87, 199**  
**Swimming-bath on board ship, 239**  
  
**TAITAO PENINSULA, 132**  
**Tamar Island, 159**

- Tamis*, S.S., 122, 123, 157  
 Tarn, Mount, ascended, 181-184  
 Telegraph, The transcontinental, 39,  
 114, 116  
 Tents for Aconcagua, 45  
 Thieves, 14  
 Tierra del Fuego, 148, 167-209, 229,  
 239  
 Todos los Santos Lake, 129  
 Torlosa Peak, 27, 28, 29, 30, 77, 83  
 Townsend, Mr. F. H., 213-238  
 Trade route, A prehistoric, 35, 36,  
 37  
 Travellers, Inexperienced, 20, 28  
 Tres Montes, 140  
 Trinidad Channel, 153  
 Tronador Peak, 130  
 Tupungato, 22, 69, 78, 96, 126
- USELESS BAY, 208  
 Ushuaia Bay, 173, 175  
 Uspallata Cumbre, The, 7, 14, 27,  
 112, 122  
 ———, An ancient pass, 36  
 ———, Passage of the, 23-29, 112,  
 113  
 ——— Valley, 35
- VACAS, 39, 108  
 Valdivia, 124, 127, 136  
 Valentin, Mount San, 130, 131, 133  
 Valle Grande Pass, 128  
 Valparaiso, 4, 12, 14, 117  
 Viedma, Lake, 133, 134, 153  
 Villa Rica Peak, 130  
 Vines, Mr. Stuart, 37, 43, 84, 87, 98  
 Viño del Mar, 4  
 Virgins, Cape, 168, 169, 239
- WAIF, AN ENGLISH, 217  
 Waterfall, Port, 176  
 Weather near Aconcagua, 40  
 Wide Channel, 153  
 Wind current, Moist westerly, 58, 116,  
 129  
 ———, Periodic in the afternoon at Inca,  
 40, 108  
 Windmill pump, 15  
 Winter climbing, 17
- Yanex*, dispatch boat, 190-208  
 York Minster Island, 180
- ZURBRIGGEN, MATTIAS, 42, 49, 59, 84,  
 87

Selections

from

Cassell & Company's

Publications.

7 G.—5.02.



**Illustrated, Fine Art, and other Volumes.**

- Aconcagua, The Ascent of.** By Sir W. MARTIN CONWAY. With 32 Illustrations from Photographs. 12s. 6d. net.
- Admirable Lady Biddy Fane, The.** By FRANK BARRETT. 3s. 6d.
- Adventure, The World of.** With Stirring Pictures and 18 Coloured Plates. In Three Vols. 5s. each.
- Afield and Afloat.** By FRANK STOCKTON. 6s.
- Allee of Old Vincennes.** By MAURICE THOMPSON. 6s.
- Ambassador's Adventure, The.** By ALLEN UPWARD. 6s.
- An Eton Boy's Letters.** By NUGENT BANKES. 5s.
- Animals, Popular History of.** By HENRY SCHERREN, F.Z.S. With 13 Coloured Plates, &c. 6s.
- Army Business, The, and its London Office.** By a Colonel in Business. 1s.
- Art, Sacred.** With nearly 200 Full-page Illustrations. 9s.
- Art, The Magazine of.** With a Series of Full-page Plates, and hundreds of Illustrations. Yearly Vol., 21s.
- Artistic Anatomy.** By Prof. M. DUVAL. *Cheap Edition.* 3s. 6d.
- Automobile, The: Its Construction and Management.** Edited by PAUL N. HASLUCK. Illustrated. 10s. 6d. net.
- Avenger of Blood, The.** By J. MACLAREN COBBAN. 3s. 6d.
- Awkward Squads, The, and other Ulster Stories.** By SHAN F. BULLOCK. 3s. 6d.
- Ballads and Songs.** By W. M. THACKERAY. Illustrated. 6s.
- Barber, Charles Burton, The Works of.** With 41 Plates and Introduction by HARRY FURNISS. 7s. 6d.
- Behind the Scenes in the Transvaal.** By D. MACKAY WILSON. 7s. 6d.
- Berry, D.D., Rev. C. A., Life of.** By the Rev. J. S. DRUMMOND. 6s.
- Birds' Nests, British: How, Where, and When to Find and Identify Them.** By R. KEARTON, F.Z.S. Illustrated from Photographs by C. KEARTON. 21s.
- Birds' Nests, Eggs, and Egg-Collecting.** By R. KEARTON, F.Z.S. With 22 Coloured Plates of Eggs. Cloth gilt, 5s.
- Birds, Our Rarer British Breeding: Their Nests, Eggs, and Breeding Haunts.** By R. KEARTON, F.Z.S. Illustrated from Photographs by C. KEARTON. 7s. 6d.
- Black Arrow, The.** By R. L. STEVENSON. 6s. *Popular Edition.* 3s. 6d.
- Black, William, Novelist.** By Sir WEMYSS REID. With 3 Portraits. 10s. 6d. net.
- Boer War, Cassell's Illustrated History of the.** 7s. 6d.
- Britain's Roll of Glory; or, The Victoria Cross, its Heroes and their Valour.** By D. H. PARRY. Illustrated. *Cheap Edition.* 3s. 6d.
- Britain's Sea-Kings and Sea-Fights.** Profusely Illustrated. 7s. 6d.
- British Ballads.** With 300 Original Illustrations. *Cheap Edition.* Two Vols. in One. Cloth, 7s. 6d.
- British Battles on Land and Sea.** By JAMES GRANT. With about 800 Illustrations. *Cheap Edition.* In Four Vols., 3s. 6d. each.
- British Sculpture and Sculptors of To-day.** By M. H. SPIELMANN. Illustrated. 5s. net; cloth, 7s. 6d. net.
- Building World.** Half-Yearly Vols., 4s. 6d. each.
- By a Hair's Breadth.** By HEADON HILL. 3s. 6d.
- Campaign Pictures of the War in South Africa (1899-1900). Letters from the Front.** By A. G. HALES. 6s.
- Canaries and Cage-Birds, The Illustrated Book of.** With 56 Facsimile Coloured Plates, 35s.; half-morocco, £2 5s.

- Cassell's Magazine.** Half-Yearly Volume, 5s.; Yearly Volume, 8s.
- Cathedrals, Abbeys, and Churches of England and Wales.** Descriptive, Historical, Pictorial. *Popular Edition.* Two Vols., 12s. the set.
- Catrina.** By R. L. STEVENSON. 6s. *Popular Edition.* 3s. 6d.
- Chinese Crisis, The Story of the.** By ALEXIS KRAUSSER. 3s. 6d.
- Chinese Pictures. Notes on Photographs made in China.** By Mrs. BISHOP, F.R.G.S. (ISABELLA BIRD) With 60 Illustrations from Photographs by the Author. 3s. 6d.
- Chinese Porcelain.** By COSMO MONKHOUSE. Illustrated. 30s. net. This Edition is limited to 1,000 copies.
- Chums. The Illustrated Paper for Boys.** Yearly Volume, 8s.
- Civil Service, Guide to Employment in the.** Paper, 1s.; cloth, 1s. 6d.
- Clinical Manuals for Practitioners and Students of Medicine.** A List of Volumes forwarded post free on application to the Publishers.
- Clyde, Cassell's Pictorial Guide to the.** With Coloured Plate, 3 Maps, and other Illustrations. Cloth, 1s.
- Colour.** By Prof. A. H. CHURCH. With Coloured Plates. 3s. 6d.
- Conning Tower, In a; or, How I took H.M.S. "Majestic" into Action.** By H. O. ARNOLD-FORSTER, M.A. Illustrated, 6d.; cloth, 1s.
- Cookery, Cassell's Dictionary of.** With about 9,000 Recipes. 5s.
- Cookery for Common Ailments.** 1s.
- Cookery, a Year's.** By PHYLLIS BROWNE. *Cheap Edition.* 1s.
- Cookery Book, Cassell's Universal.** By LIZZIE HERITAGE. With 12 Coloured Plates. 6s.
- Cookery, Cassell's Shilling.** 1s.
- Cookery, Vegetarian.** By A. G. PAYNE. *Cheap Edition.* 1s.
- Cooking by Gas, The Art of.** By MARIE J. SUGG. Illustrated. 2s.
- Copyright in Books, The Law and History of.** By AUGUSTINE BIRRELL, M.P. 3s. 6d. net.
- Countries of the World, The.** By ROBERT BROWN, M.A., F.L.S., &c. *Cheap Edition.* Illustrated. In Six Vols. 6s. each.
- Cupid's Garden.** By ELLEN THORNEYCROFT FOWLER. 3s. 6d.
- Cyclopaedia, Cassell's Concise.** With about 600 Illustrations. 5s.
- Cyclopaedia, Cassell's Miniature.** Containing 30,000 subjects. *Cheap and Revised Edition.* Limp cloth 1s.; cloth gilt, 1s. 6d.
- Dainty Breakfasts, The Dictionary of.** By PHYLLIS BROWNE. 1s.
- Dante in Paradise, With: Readings from the "Paradiso."** By ROSE E. SELFE. 6 Illustrations. 2s.
- "Death or Glory Boys," The.** The Story of the 17th Lancers. By D. H. PARRY. 6s.
- Dog, Illustrated Book of the.** By VERO SHAW, B.A. With 28 Coloured Plates. Cloth bevelled, 35s.; half-morocco, 45s.
- Doings of Raffles Haw, The.** By A. CONAN DOYLE. 3s. 6d.
- Doré Bible, The.** With 200 Full-page Illustrations by DORÉ. 15s.
- Doré Don Quixote, The.** With about 400 Illustrations by GUSTAVE DORÉ. *Cheap Edition.* Cloth, 10s. 6d.
- Doré Gallery, The.** With 250 Illustrations by DORÉ. 42s.
- Doré's Dante's Inferno.** Illustrated by GUSTAVE DORÉ. Large 4to Edition, cloth gilt, 21s.
- Doré's Dante's Purgatory and Paradise.** Illustrated by GUSTAVE DORÉ. *Cheap Edition.* 7s. 6d.
- Doré's Milton's Paradise Lost.** Illustrated by DORÉ. 4to, 21s. *Popular Edition.* Cloth or buckram, 7s. 6d. *Cheap Edition.* In One Vol., 12s. 6d.
- Earth's Beginning, The.** By SIR ROBERT BALL, LL.D. illustrated. 7s. 6d.
- Earth, Our, and its Story.** By Dr. ROBERT BROWN, F.L.S. With Coloured Plates and numerous Engravings. *Cheap Edition.* 3 Vols., 5s. each.

**Egypt: Descriptive, Historical, and Pictoresque.** By Prof. G. EBERS. With 800 Original Engravings. *Popular Edition.* In Two Vols. 42s.

**Electricity in the Service of Man.** Illustrated. 7s. 6d.

**Electricity, Practical.** By Prof. W. E. AYTON, F.R.S. New and Enlarged Edition. 9s.

**England and Wales, Pictorial.** With upwards of 300 Illustrations from Photographs. 9s.

**England, A History of.** From the Landing of Julius Cæsar to the Present Day. By H. O. ARNOLD-FORSTER, M.A. Fully Illustrated. 5s. Cloth gilt, gilt edges, 6s. 6d.

**English Dictionary, Cassell's.** Giving Definitions of more than 100,000 Words and Phrases. 3s. 6d.

**English History, The Dictionary of.** Edited by SIDNEY LOW, B.A., and Prof. F. S. PULLING, M.A. 7s. 6d.

**English Literature, Morley's First Sketch of.** 7s. 6d.

**English Literature, The Story of.** By ANNA BUCKLAND. 3s. 6d.

**English Writers.** By Prof. HENRY MORLEY. Vols. I to XI., 5s. each.

**Familiar Butterflies and Moths.** By W. F. KIRBY, F.L.S. With 18 Coloured Plates. 6s.

**Familiar Wild Birds.** By W. SWAYSLAND. With Coloured Pictures by A. THORBURN and others. *Cheap Edition,* Four Vols., 3s. 6d. each.

**Family Doctor, Cassell's.** By A MEDICAL MAN. Illustrated. 6s.

**Family Lawyer, Cassell's.** An Entirely New and Original Work. By A BARRISTER-AT-LAW. 10s. 6d.

**Father Stafford.** By ANTHONY HOPE. 3s. 6d.

**Field Hospital, The Tale of a.** By Sir FREDERICK TREVES, K.C.V.O., F.R.C.S. With 14 Illustrations. 6s.

**Field Naturalist's Handbook, The.** By the Revs. J. G. WOOD and THEODORE WOOD. 2s. 6d.

**Figular's Popular Scientific Works.** Illustrated. 3s. 6d. each.  
 THE HUMAN RACE.  
 MAMMALS.  
 THE OCEAN WORLD.  
 REPTILES AND BIRDS.  
 THE WORLD BEFORE THE DELUGE.  
 THE VEGETABLE WORLD.

**Franco-German War, Cassell's History of the.** Complete in Two Vols. Containing about 500 Illustrations. *Cheap Edition.* 6s. each.

**Fruit Growing, Pictorial Practical.** By W. P. WRIGHT. Illustrated. Paper covers, 1s. Cloth, 1s. 6d.

**Gardening, Pictorial Practical.** By W. P. WRIGHT. With upwards of 140 Illustrations. Paper covers, 1s. Cloth, 1s. 6d.

**Garden Flowers, Familiar.** With 200 Full-page Coloured Plates. *Cheap Edition.* In Five Vols., 3s. 6d. each. By F. EDWARD HULME, F.L.S., F.S.A.

**Gardener, The Yearly Volume.** Profusely Illustrated. 7s. 6d.

**Gazetteer of Great Britain and Ireland, Cassell's.** With numerous Illustrations and 60 Maps. Six Vols., 5s. each.

**Garden of Swords, The.** By MAX PEMBERTON. 6s.

**Giant's Gate, The.** By MAX PEMBERTON. 6s.

**Girl at Cobhurst, The.** By FRANK STOCKTON. 3s. 6d.

**Gladstone, William Ewart, The Life of.** Edited by Sir WEMYSS REID. Illustrated. 7s. 6d. *Superior Edition,* in Two Vols. 9s.

**Gladys Fane.** A Story of Two Lives. By Sir WEMYSS REID. 3s. 6d.

**Gleanings from Popular Authors.** Illustrated. *Cheap Edition.* 3s. 6d.

**Greenhouse Management, Pictorial.** By WALTER P. WRIGHT, Editor of "The Gardener," &c. With nearly 100 Illustrations. Paper covers, 1s.; cloth, 1s. 6d.

**Gun and its Development, The.** By W. W. GREENER. With 500 Illustrations. *Entirely New Edition.* 10s. 6d.

**Gun-Room Ditty Box, A.** By G. STEWART BOWLES. With a Preface by Rear-Admiral Lord CHARLES BERESFORD, M.P. 2s.

**Heavens, The Story of the.** By Sir ROBERT BALL, LL.D. With Coloured Plates. *Popular Edition.* 10s. 6d.

- Heroes of Britain in Peace and War.** With 300 Original Illustrations. *Cheap Edition.* Complete in One Vol. 3s. 6d.
- Hispaniola Plate, The.** By J. BLOUNDELLE-BURTON. 3s. 6d.
- History, A Foot-Note to.** Eight Years of Trouble in Samoa. By ROBERT LOUIS STEVENSON. 6s.
- Houghton, Lord : The Life, Letters, and Friendships of Richard Monckton Milnes, First Lord Houghton.** By SIR WEMYSS REID. In Two Vols., with Two Portraits. 3s.
- Hygiene and Public Health.** By B. ARTHUR WHITELEGGE, M.D. 7s. 6d.
- Is : A Love Story.** By A. T. QUILLER-COUCH (Q). 3s. 6d.
- Impregnable City, The.** By MAX PEMBERTON. 3s. 6d.
- India, Cassell's History of.** In One Vol. *Cheap Edition.* Illustrated. 7s. 6d.
- In Royal Purple.** By WILLIAM PIGOTT. 6s.
- Iron Pirate, The.** By MAX PEMBERTON. 3s. 6d. *People's Edition.* 6d.
- Kate Bonnet : The Romance of a Pirate's Daughter.** By FRANK R. STOCKTON. With 8 Illustrations. 6s.
- Kidnapped.** By R. L. STEVENSON. 3s. 6d. *People's Edition.* 6d.
- Kilogram, The Coming of the ; or, The Battle of the Standards.** By H. O. ARNOLD-FORSTER, M.A. Illustrated. *Cheap Edition.* 6d.
- King Solomon's Mines.** By H. RIDER HAGGARD. Illustrated. 3s. 6d. *People's Edition,* 6d.
- King's Hussar, A.** By H. COMPTON. 3s. 6d.
- Kronstadt.** By MAX PEMBERTON. 6s.
- Ladies' Physician, The.** By A LONDON PHYSICIAN. 3s. 6d.
- Laird's Luck, The, and other Fireside Tales.** By A. T. QUILLER-COUCH (Q). 6s.
- Landels, D.D., William. A Memoir.** By his Son, the Rev. THOMAS D. LANDELS, M.A. With Portrait. 6s.
- Landscape Painting in Water-Colour.** By J. MACWHIRTER, R.A. With 23 Coloured Plates. 5s.
- Lepidus the Centurion : A Roman of To-day.** By EDWIN LESTER ARNOLD. 6s.
- Letts's Diaries and other Time-saving Publications** published exclusively by CASSELL & COMPANY. (*A list free on application.*)
- Life of Lives : Further Studies in the Life of Christ.** By DEAN FARRAR. 15s.
- List, Ye Landsmen!** By W. CLARK RUSSELL. 3s. 6d.
- Little Huguenot, The.** By MAX PEMBERTON. *New Edition.* 1s. 6d.
- Little Minister, The.** By J. M. BARRIE. 6s.
- Little Novice, The.** By ALIX KING. 6s.
- Little Squire, The.** By Mrs. HENRY DE LA PASTURE. 3s. 6d.
- Living London.** Vol. I. Edited by GEORGE R. SIMS. Containing over 450 Illustrations from Photographs expressly taken, and from Drawings by the best Artists. 12s.; half leather, 16s.
- London Afternoons.** By W. J. LOFTIE, F.S.A. Illustrated. 10s. 6d. net.
- London, Cassell's Guide to.** Illustrated. *New Edition,* 6d.; cloth, 1s.
- London, Greater.** Two Vols. With about 400 Illustrations. *Cheap Edition.* 4s. 6d. each.
- London, Old and New.** Six Vols. With about 1,200 Illustrations and Maps. *Cheap Edition.* 4s. 6d. each.
- Loveday.** By A. E. WICKHAM. 3s. 6d.
- Man in Black, The.** By STANLEY WEYMAN. 3s. 6d.
- Marine Painting in Water-Colour.** By W. L. WYLLIE, A.R.A. With 24 Coloured Plates. 5s.
- Masque of Days, A.** With 40 pages of Designs in Colour by WALTER CRANE. 6s.
- Master of Ballantrae.** By R. L. STEVENSON. 6s. *Popular Edition.* 3s. 6d.
- Mechanica, Cassell's Cyclopædia of.** Edited by PAUL N. HASLUCK. Profusely Illustrated. Series I and 2. 7s. 6d. each.

- Medicine, Manuals for Students of.** (*A list forwarded post free.*)
- Military Forces of the Crown. Their Organisation and Equipment.** By Colonel W. H. DANIEL. Illustrated. 5s.
- Modern Europe, A History of.** By C. A. FYFFE, M.A. *Cheap Edition.* 10s. 6d. Library Edition. Illustrated. Three Vols. 7s. 6d. each.
- Music, Illustrated History of.** By EMIL NAUMANN. Edited by the Rev. Sir F. A. GORE OUSELEY, Bart. Illustrated. *Cheap Edition.* Two Vols. 18s.
- Nat Harlowe, Mountebank.** By GEORGE R. SIMS. With 16 Illustrations. 3s. 6d.
- National Gallery, The.** Edited by Sir E. J. POYNTER, P.R.A. Illustrating every Picture in the National Gallery. In Three Vols. £14 14s. the set, net.
- National Gallery Catalogue.** Profusely Illustrated. 6d. net.
- National Gallery of British Art (The Tate Gallery), The Catalogue of the.** Issued under the authority of the Trustees. With an Introduction by Sir EDWARD POYNTER, P.R.A., Director of the National Gallery. Containing numerous Illustrations, and a List of all the Pictures exhibited. 6d. net.
- National Library, Cassell's.** 3d. and 6d. List post free on application.
- National Portrait Gallery.** Edited by LIONEL CUST, M.A., F.S.A. Illustrating every picture in the National Portrait Gallery. Two Vols. £6 6s. net.
- Nation's Pictures, The.** Vol. I. Containing 48 Beautiful Coloured Reproductions of some of the finest Modern Paintings in the Public Picture Galleries of Great Britain, with descriptive Text. Cloth, 12s.; half leather, 15s.
- Natural History, Cassell's Concise.** By E. PERCEVAL WRIGHT, M.A., M.D., F.L.S. With several Hundred Illustrations. 7s. 6d.
- Natural History, Cassell's.** *Cheap Edition.* With about 2,000 Illustrations. In Three Double Vols. 6s. each.
- Nature and a Camera, With.** By RICHARD KEARTON, F.Z.S. With Frontispiece, and 180 Pictures from Photographs by C. KEARTON. *Cheap Edition.* 7s. 6d.
- Nature's Wonder Workers.** By KATE R. LOVELL. Illustrated. 2s. 6d.
- New Far East, The.** By ARTHUR DODS, Illustrated. *Cheap Edition.* 6s.
- North-West Passage, by Land, The.** By Lord MILTON and Dr. CHADWICK. *Cheap Edition.* 2s.
- Old Fires and Profitable Ghosts.** By A. T. QUILLER-COUCH (Q). 6s.
- "Ophir," with the : Round the Empire.** An account of the Tour of the Prince and Princess of Wales, 1901. With 24 Illustrations. By WM. MAXWELL. 6s.
- Our Bird Friends.** By R. KEARTON, F.Z.S. With 100 Illustrations from Photographs by C. KEARTON. 5s.
- Our Own Country.** With 1,200 Illustrations. *Cheap Edition.* Three Double Vols. 5s. each.
- Oxford, Reminiscences of.** By the Rev. W. TUCKWELL, M.A. With 16 Full-page Illustrations. 9s.
- Painting, Practical Guides to.** With Coloured Plates :—
- CHINA PAINTING. 2s.
- ELEMENTARY FLOWER PAINTING. 2s.
- NEUTRAL TINT. 2s.
- FLOWERS, AND HOW TO PAINT THEM. 2s.
- MANUAL OF OIL PAINTING. 2s. 6d.
- MACWHIRTER'S LANDSCAPE PAINTING IN WATER-COLOUR. 2s.
- WYLLIE'S MARINE PAINTING IN WATER COLOUR. 2s.
- Paris, Cassell's Illustrated Guide to.** Paper, 6d.; cloth, 1s.
- Passing of the Dragon, The.** By F. JAY CRAGE. 1s.
- Peel, Sir R.** By Lord ROSEBURY. 2s. 6d.
- Penny Magazine, The New.** With about 650 Illustrations. In Quarterly Volumes. 2s. 6d. each.
- Peoples of the World, The.** By Dr. ROBERT BROWN. In Six Vols. Illustrated. 3s. 6d. each.
- Peril and Patriotism. True Tales of Heroic Deeds and Startling Adventures.** Two Vols. in One. 5s.
- Personal Recollections.** By H. SUTHERLAND EDWARDS. 7s. 6d.
- Phrase and Fable, Dr. Brewer's Dictionary of.** *New and Enlarged Edition.* 10s. 6d. Also in half-morocco. Two Vols. 15s.

- Pictorial Scotland and Ireland.** With 320 Copyright Illustrations from Photographs. 9s.
- Picturesque America.** In Four Vols., with 48 Steel Plates and 800 Wood Engravings. £12 12s. the set. *Popular Edition.* 18s. each.
- Picturesque Canada.** With 600 Original Illustrations. Two Vols. £9 9s. the set.
- Picturesque Europe.** *Popular Edition.* In Five Vols. Each containing 13 Litho Plates and nearly 200 Illustrations. 6s. each. Vols. I. and II., The British Isles; Vols. III., IV., and V., The Continent. Vols. I. and II., bound together, are issued at 10s. 6d.
- Picturesque Mediterranean, The.** With Magnificent Illustrations by the leading Artists of the Day. Complete in Two Vols. £2 2s. each.
- Pigeons, Fulton's Book of.** Edited by LEWIS WRIGHT. Revised, Enlarged, and Supplemented by the Rev. W. F. LUMLEY. With 50 Full-page Illustrations. *Popular Edition.* 10s. 6d. *Original Edition,* with 50 Coloured Plates and numerous Wood Engravings. 21s.
- Planet, The Story of Our.** By Prof. BONNY, F.R.S. With Coloured Plates and Maps and about 100 Illustrations. *Cheap Edition.* 7s. 6d.
- Playfair, Lyon, First Lord Playfair of St. Andrews, Memoirs and Correspondence of.** By Sir WEMYSS REID. With Two Portraits. *Cheap Edition.* 7s. 6d.
- Playthings and Parodies.** By BARRY PAIN. 3s. 6d.
- Pomona's Travels.** By FRANK STOCKTON. 3s. 6d.
- Potaherda.** By Mrs. HENRY BIRCH-ENOUGH. 6s.
- Poultry Club Standards, The.** With an Introduction by LEWIS WRIGHT. Edited by T. THRELFORD. 1s. net.
- Poultry, The Book of.** By LEWIS WRIGHT. *Popular Edition.* 10s. 6d.
- Poultry, The New Book of.** By LEWIS WRIGHT. With 30 new Coloured Plates, expressly prepared by J. W. Ludlow, and other Illustrations. 21s.
- Poultry Keeper, The Practical.** By LEWIS WRIGHT. With Eight Coloured Plates, and numerous Illustrations in Text. *New and Enlarged Edition.* 3s. 6d.
- Princess Cynthia, The.** By MARGUERITE BRYANT. 6s.
- Puritan's Wife, A.** By MAX PEMBERTON. 6s.
- Q's Works.** 5s. each.
- \*DEAD MAN'S ROCK.** Also *People's Edition,* 6d.
- \*THE SPLENDID SPUR.**
- THE ASTONISHING HISTORY OF TROY TOWN.**
- "I SAW THREE SHIPS,"** and other Winter's Tales.
- NOUGHTS AND CROSSES.**
- THE DELECTABLE DUCHY.**
- WANDERING HEATH.**
- \* Also at 3s. 6d.
- Queen's Empire, The.** Containing nearly 700 Splendid full-page Illustrations. Complete in Two Vols. 9s. each.
- Queen's London, The.** Containing nearly 500 Exquisite Views of London and its Environs. *Enlarged Edition.* 10s. 6d.
- Queen Victoria. A Personal Sketch.** By Mrs. OLIPHANT. With Three Rembrandt Plates and other Illustrations. 3s. 6d. Also 5s., half-morocco.
- Queen Victoria. Her Life in Portraits.** 6d. net. Cloth, 1s. net.
- Rabbit-Keeper, The Practical.** By "CUNICULUS," assisted by Eminent Fanciers. With Illustrations. 3s. 6d.
- Railway Guides, Official.** With Illustrations, Maps, &c. Price 1s. each; or in Cloth, 1s. 6d. each.
- LONDON AND NORTH WESTERN RAILWAY.
- GREAT WESTERN RAILWAY.
- MIDLAND RAILWAY.
- GREAT NORTHERN RAILWAY.
- GREAT EASTERN RAILWAY.
- LONDON AND SOUTH WESTERN RAILWAY.
- LONDON, BRIGHTON AND SOUTH COAST RAILWAY.
- SOUTH EASTERN AND CHATHAM RAILWAY
- Red Terror, The.** A Story of the Paris Commune. By EDWARD KING. 3s. 6d.
- Refiner's Fire, The.** By Mrs. E. HOCKLIFFE. 3s. 6d.
- Rivers of Great Britain: Descriptive, Historical, Pictorial.**
- RIVERS OF THE SOUTH AND WEST COAST.
- <sup>42s.</sup>
- THE ROYAL RIVER: The Thames, from Source to Sea. 12s.
- RIVERS OF THE EAST COAST. *Popular Edition.* 12s.
- Robinson Crusoe, Cassell's Fine-Art Edition.** *Cheap Edition.* 3s. 6d.
- Rogue's March, The.** By E. W. HORNING. 3s. 6d.

- Roxana.** By LOUIS CRESWICKE. 6s.  
**Royal Academy Pictures.** Annual Volume. 7s. 6d.
- Ruskin, John: A Sketch of His Life, His Work, and His Opinions, with Personal Reminiscences.** By M. H. SPIELMANN. 5s.
- Saturday Journal, Cassell's.** Yearly Volume, cloth, 7s. 6d.
- Scales of Heaven, The. Narrative, Legendary and Meditative.** With a few Sonnets. By the Rev. FREDERICK LANGBRIDGE. 5s.
- Science Series, The Century.** Consisting of Biographies of Eminent Scientific Men of the present Century. Edited by Sir HENRY ROSCOE, D.C.L., F.R.S. Crown 8vo. *New Edition.* 2s. 6d. each.
- JOHN DALTON AND THE RISE OF MODERN CHEMISTRY.** By Sir Henry E. Roscoe, F.R.S.
- MAJOR BENNELL, F.R.S., AND THE RISE OF ENGLISH GEOGRAPHY.** By Sir Clements K. Markham, C.B., F.R.S.
- JUSTUS VON LIEBIG: HIS LIFE AND WORK.** By W. A. Shenstone, F.I.C.
- THE HERSCHEL AND MODERN ASTRONOMY.** By Miss Agnes M. Clerke.
- CHARLES LYELL AND MODERN GEOLOGY.** By Professor T. G. Bonney, F.R.S.
- J. CLERK MAXWELL AND MODERN PHYSICS.** By R. T. Glazebrook, F.R.S.
- HUMPHRY DAVY, POET AND PHILOSOPHER.** By F. E. Thorpe, F.R.S.
- CHARLES DARWIN AND THE THEORY OF NATURAL SELECTION.** By Edward P. Poulton, M.A., F.R.S.
- PASTHUR.** By Percy Frankland, Ph.D. (Würzburg), B.Sc. (Lond.), and Mrs. Percy Frankland.
- MICHAEL FARADAY: HIS LIFE AND WORK.** By Professor Silvanus P. Thompson, F.R.S.
- Science for All.** Edited by Dr. ROBERT BROWN. *Cheap Edition.* In Five Vols. 3s. 6d. each.
- Scientific Truth, The Criterion of.** By GEORGE SHANN. 1s. 6d.
- Sea, The Story of the.** Edited by Q. Illustrated. In Two Vols. 9s. each. *Cheap Edition.* 5s. each.
- Sea Wolves, The.** By MAX PEMBERTON. 3s. 6d. *People's Edition.* 6d.
- Sentimental Tommy.** By J. M. BARRIE. Illustrated. 6s.
- Shaftesbury, The Seventh Earl of, K.G., The Life and Work of.** By EDWIN HODDER. *Cheap Edition.* 3s. 6d.
- Shakespeare, The Plays of.** Edited by Professor HENRY MORLEY. Complete in Thirteen Vols., cloth, 21s.; also 39 Vols., cloth, in box, 21s.
- Shakespeare, National Library Edition.** 37 Vols. Leather. 1s. 6d. net each.
- Shakespeare, The England of.** *New Edition.* By E. GOADBY. With Full-page Illustrations. 2s. 6d.
- Shakespeare, The Leopold.** With 400 Illustrations. *Cheap Edition.* 3s. 6d. Cloth gilt, gilt edges, 5s.; roxburgh, 7s. 6d.
- Shakespeare, The Royal.** With 50 Full-page Illustrations. Complete in Three Vols. 3s. 6d. each.
- Shaw, Alfred, Cricketer: His Career and Reminiscences.** Recorded by A. W. PULLEN. With a Statistical Chapter by ALFRED J. GASTON. Illustrated. 2s. 6d.
- Shellback, The: At Sea in the 'Sixties.** By ALEC J. BOYD. 6s.
- Ship of Stars, The.** By A. T. QUILLER-COUCH (Q). 6s.
- Shop," "The: The Story of the Royal Military Academy.** By CAPTAIN GUGGISBERG, R.E. With 16 Full-page Coloured Plates. 12s. 6d. net.
- Siberia, The Real.** By J. FOSTER FRASER. With numerous Illustrations from Photographs. 6s.
- Sights and Scenes in Oxford City and University.** With 100 Illustrations after Original Photographs. 21s.
- Social England. A Record of the Progress of the People.** By various Writers. Edited by the late H. D. TRAILL, D.C.L. *New Illustrated Edition.* to be completed in Six Vols. Vol. I., 12s. net.
- Soldier of the King, A.** By DORA M. JONES. 6s.
- Some Persons Unknown.** By E. W. HORNUNG. 3s. 6d.
- Songs of Near and Far Away.** By E. RICHARDSON. With numerous Coloured and other Illustrations. 6s.
- Splendid Spur, The.** By A. T. QUILLER-COUCH (Q). 3s. 6d.
- Sports and Pastimes, Cassell's Complete Book of.** *Cheap Edition.* With more than 900 Illustrations. Medium 8vo, 992 pages, cloth, 3s. 6d.
- Standard Library, Cassell's.** Popular Works by Great Authors of the Past. 12 Vols. 1s. net each.
- Star-Land.** By Sir ROBERT BALL, LL.D. Illustrated. *New and Enlarged Edition.* 7s. 6d.

- Story of Francis Gludde, The.** By STANLEY WEYMAN. 3s. 6d.
- Sun, The Story of the.** By Sir ROBERT BALL, LL.D. With Eight Coloured Plates and other Illustrations. *Cheap Edition.* 10s. 6d.
- Technical Instruction.** A Series of Practical Volumes. Edited by P. N. HASLUCK. Illustrated. 2s. each.  
 Vol. I. PRACTICAL STAIRCASE JOINERY.  
 Vol. II. PRACTICAL METAL PLATE WORK.  
 Vol. III. PRACTICAL GAS FITTING.  
 Vol. IV. PRACTICAL DRAUGHTSMEN'S WORK.
- Tidal Thames, The.** By GRANT ALLEN. With India Proof Impressions of 20 magnificent Full-page Photogravure Plates, and with many other Illustrations in the Text after Original Drawings by W. L. WYLLIE, A.R.A. *New Edition.* Cloth, 42s. net.
- Tommy and Grisel.** By J. M. BARRIE. 6s.
- Treasure Island.** By R. L. STEVENSON. *Cheap Illustrated Edition.* 3s. 6d.
- "Unicode": The Universal Telegraphic Phrase Book.** *Desk or Pocket Edition.* 2s. 6d.
- Universal History, Cassell's Illustrated.** Four Volumes. 9s. each.
- Vanished Rival, A.** By J. BLOUNDELLE-BURTON. 6s.
- Vizier of the Two-Horned Alexander, The.** By FRANK STOCKTON. 3s. 6d.
- Vicat Cole, R.A., The Life and Paintings of.** Illustrated. In Three Volumes. £3 3s.
- Wallace Collection in Hertford House, The.** By M. H. SPIELMANN. 1s.
- War Office, The, the Army, and the Empire.** By H. O. ARNOLD-FORSTER, M.A. *Cheap Edition.* 6d.
- Wars of the Nineties, The.** A History of the Warfare of the last Ten Years of the 19th Century. Profusely Illustrated. In One Vol. 7s. 6d.
- Westminster Abbey, Annals of.** By E. T. BRADLEY (Mrs. A. MURRAY SMITH). Illustrated. *Cheap Edition.* 21s.
- What Cheer!** By W. CLARK RUSSELL. 3s. 6d.
- White Shield, The.** By BERTRAM MITFORD. 3s. 6d.
- Whist, Encyclopedia of the Game of.** By Sir WILLIAM CUSACK-SMITH, Bart. 2s. 6d.
- Wild Flowers, Familiar.** By F. EDWARD HULME, F.L.S., F.S.A. With 240 beautiful Coloured Plates. *Cheap Edition.* In Six Volumes. 3s. 6d. each.
- Wild Life at Home: How to Study and Photograph It.** By RICHARD KEARTON, F.Z.S. Illustrated from Photographs by C. KEARTON. 6s.
- Wit and Humour, Cassell's New World of.** Two Vols. 6s. each.
- Work.** The Illustrated Weekly Journal for Mechanics. Half-Yearly Vols. 4s. 6d. each.
- "Work" Handbooks.** Practical Manuals prepared under the direction of PAUL N. HASLUCK, Editor of *Work*. Illustrated. 1s. each.
- World of Wonders.** Illustrated. *Cheap Edition* Two Vols. 4s. 6d. each.
- Wrecker, The.** By R. L. STEVENSON and LLOYD OSBOURNE. 6s. *Popular Edition.* 3s. 6d.
- Young Blood.** By E. W. HORNING. 3s. 6d.

### Illustrated Magazines and Practical Journals.

- THE QUIVER.** Monthly, 6d.
- CASSELL'S MAGAZINE.** Monthly, 6d.
- THE NEW PENNY MAGAZINE.** Weekly, 1d.; Monthly, 6d.
- LITTLE FOLKS.** Monthly, 6d.
- THE MAGAZINE OF ART.** Monthly, 1s. 4d.
- TINY TOTS.** For the Very Little Ones. Monthly, 1d.
- CASSELL'S SATURDAY JOURNAL.** Weekly, 1d.; Monthly, 6d.
- CHUMS.** The Paper for Boys. Weekly, 1d.; Monthly, 6d.
- WORK.** Weekly, 1d.; Monthly, 6d.
- BUILDING WORLD.** Weekly, 1d.; Monthly, 6d.
- THE GARDENER.** Weekly, 1d.; Monthly, 6d.

CASSELL & COMPANY, LIMITED, Ludgate Hill, London.



**Bibles and Religious Works.**

**Aids to Practical Religion.** Selections from the Writings and Addresses of W. Boyd Carpenter, Lord Bishop of Ripon. By the Rev. J. H. BURN, B.D., F.R.S.E. 3s. 6d.

**Bible Biographies.** Illus. 1s. 6d. each.  
**THE STORY OF MOSES AND JOSHUA.** By the Rev. J. Telford.  
**THE STORY OF THE JUDGES.** By the Rev. J. Wycliffe Gedge.  
**THE STORY OF SAMUEL AND SAUL.** By the Rev. D. C. Tovey.  
**THE STORY OF DAVID.** By the Rev. J. WBD.  
**THE STORY OF JOSEPH, Its Lessons for To-day.** By the Rev. George Bainton.

**THE STORY OF JESUS.** In Verse. By J. R. Macduff, D.D.

**Bible Commentary.** Edited by Bishop ELLICOTT. Handy Volume Edition, suitable for school and general use. Vols. from 2s. 6d. to 3s. 6d.

**Bible Dictionary, Cassell's Concise.** By the Rev. ROBERT HUNTER, LL.D. Illustrated. 7s. 6d.

**Bible Student in the British Museum, The.** By the Rev. J. G. KITCHIN, M.A. *New and Revised Edition.* 1s. 4d.

**Bunyan, Cassell's Illustrated.** With 200 Original Illustrations. *Cheap Edition.* 3s. 6d.

**Child's Bible, The.** With 100 Illustrations and Coloured Plates. *New Edition.* 10s. 6d.

**Child's Life of Christ, The.** With 200 Illustrations. 7s. 6d.

**Church of England, The.** A History for the People. By the Very Rev. H. D. M. SPENCE, D.D., Dean of Gloucester. Illustrated. Complete in Four Vols. 6s. each.

**Church Reform in Spain and Portugal.** By the Rev. H. E. NOYES, D.D. Illustrated. 2s. 6d.

**A Bible Commentary for English Readers.** Edited by Bishop ELLICOTT. With Contributions by eminent Scholars and Divines:—  
**NEW TESTAMENT.** *Popular Edition.* Unabridged. Three Vols. 6s. each.  
**OLD TESTAMENT.** *Popular Edition.* Unabridged. Five Vols. 6s. each.

**Doré Bible.** With 200 Full-page Illustrations by GUSTAVE DORÉ. *Popular Edition.* 15s.

**Early Christianity and Paganism.** By the Rev. H. D. SPENCE. Illustrated. 18s. net.

**Early Days of Christianity, The.** By the Very Rev. Dean FARRAR, D.D., F.R.S. *Library Edition.* Two Vols., 24s.; *morocco, £2 2s. Popular Edition.* Complete in One Volume. Cloth, gilt edges, 7s. 6d. *Cheap Edition.* Cloth gilt, 3s. 6d.; *paste grain, 5s. net.*

**Family Prayer-Book, The.** Edited by the Rev. Canon GARRETT, M.A., and Rev. S. MARTIN. With Full-page Illustrations. 7s. 6d.

**Gleanings after Harvest.** Studies and Sketches by the Rev. JOHN R. VERNON, M.A. Illustrated. *Cheap Edition.* 3s. 6d.

**"Graven in the Rock."** By the Rev. Dr. SAMUEL KINNS, F.R.A.S. Illustrated. *Library Edition.* Two Vols. 15s.

**"Heart Chords."** A Series of Works by Eminent Divines. 1s. each.

**MY COMFORT IN SORROW.** By Hugh Macmillan, D.D.

**MY BIBLE.** By the Right Rev. W. Boyd Carpenter, Bishop of Ripon.

**MY FATHER.** By the Right Rev. Ashton Ozenden, late Bishop of Montreal.

**MY WORK FOR GOD.** By the Right Rev. Bishop Cotterill.

**MY EMOTIONAL LIFE.** By the Rev. Prob. Chadwick, D.D.

**MY BODY.** By the Rev. Prof. W. G. Blaikie, D.D.

**MY GROWTH IN DIVINE LIFE.** By the Rev. Prob. Reynolds, M.A.

**MY SOUL.** By the Rev. P. B. Power, M.A.

**MY HEREAFTER.** By the Very Rev. Dean Bickersteth.

"Heart Chords" (continued):—

MY AID TO THE DIVINE LIFE. By the Very Rev. Dean Boyle.

MY SOURCES OF STRENGTH. By the Rev. E. E. Jenkins, M.A.

MY WALK WITH GOD. By the Very Rev. Dean Montgomery.

**Helps to Belief.** Helpful Manuals on the Religious Difficulties of the Day. Edited by Canon TEIGNMOUTH-SHORE. Cloth, 1s. each.

MIRACLES: By the Rev. Brownlow Maitland, M.A.

THE ATONEMENT. By William Connor Magee, D.D., late Archbishop of York.

**Holy Land and the Bible.** A Book of Scripture Illustrations gathered in Palestine. By the Rev. CUNNINGHAM GEIKIE, D.D. *Cheap Edition.* 7s. 6d. *Superior Edition.* With 24 Plates. Cloth gilt, gilt edges, 10s. 6d.

**Life of Christ, The.** By the Very Rev. Dean FARRAR. *Cheap Edition.* With 16 Full-page Plates. 3s. 6d. *Library Edition.* Two Vols. Cloth, 24s.; morocco, 42s. *Large Type Illustrated Edition.* Cloth, full gilt, gilt edges, 10s. 6d. *Popular Edition.* With 16 Full-page Plates. 7s. 6d.

**Life of Lives, The; Further Studies in the Life of Christ.** By Dean FARRAR. 15s.

**Life and Work of the Redeemer.** Illustrated. 6s.

**Matin and Vesper Bella.** Earlier and Later Collected Poems. (Chiefly Sacred). By J. R. MACDUFF, D.D. Two Vols. 7s. 6d. the set.

**Methodism, Side Lights on the Conflicts of.** During the Second Quarter of the Nineteenth Century, 1827-1852. From the Notes of the late Rev. JOSEPH FOWLER of the Debates of the Wesleyan Conference. Cloth, 8s. *Popular Edition.* Unabridged. Cloth, 3s. 6d.

**Moses and Geology; or, The Harmony of the Bible with Science.**

By the Rev. SAMUEL KINNS, Ph.D., F.R.A.S. Illustrated. 10s. 6d. net.

**Plain Introductions to the Books of the Old Testament.** Edited by BISHOP ELLICOTT. 3s. 6d.

**Plain Introductions to the Books of the New Testament.** Edited by Bishop ELLICOTT. 3s. 6d.

**Protestantism, The History of.** By the Rev. J. A. WYLIE, LL.D. Containing upwards of 600 Original Illustrations. *Cheap Edition.* Three Vols. 3s. 6d. each.

**Quiver Yearly Volume, The.** With about 900 Original Illustrations. 7s. 6d.

**St. Paul, The Life and Work of.** By the Very Rev. Dean FARRAR. *Cheap Edition.* With 16 Full-page Plates, 3s. 6d.; *Cheap Illustrated Edition.* 7s. 6d.; *Library Edition.* Two Vols., 24s. or 42s. *Illustrated Edition.* £1 1s. or £2 2s. *Popular Edition.* 7s. 6d.

"Six Hundred Years"; or, Historical Sketches of Eminent Men and Women who have more or less come into contact with the Abbey and Church of Holy Trinity, Minorities, from 1293 to 1893. With 65 Illustrations. By the Vicar, the Rev. Dr. SAMUEL KINNS. 10s. 6d. net.

"Sunday," Its Origin, History, and Present Obligation. By the Ven. Archdeacon HESSEY, D.C.L. *Fifth Edition.* 7s. 6d.

## Educational Works and Students' Manuals.

- Alphabet, Cassell's Pictorial.** 2s. and 2s. 6d.
- Atlas, Cassell's Popular.** Containing 24 Coloured Maps. 1s. 6d.
- Blackboard Drawing.** By W. E. SPARKES. Illustrated. 3s. 6d.
- Book-keeping.** By THEODORE JONES. For Schools, 2s.; cloth, 3s. For the Million, 2s.; cloth, 3s. Books for Jones's System, 2s.
- Chemistry, The Public School.** By J. H. ANDERSON, M.A. 2s. 6d.
- Dulce Domum.** Rhymes and Songs for Children. Edited by JOHN FARMER, Editor of "Gaudemus," &c. Old Notation and Words, 5s.  
N.B.—The words of the Songs in "Dulce Domum" (with the Airs in both Tonic Sol-fa and Old Notation) can be had in Two Parts, 6d. each.
- England, a History of.** By H. O. ARNOLD-FORSTER, M.A. Illustrated. 5s.
- Euclid, Cassell's.** Edited by Prof. WALLACE, M.A. 1s.
- "Eyes and No Eyes" Series (Cassell's).** By ARABELLA BUCKLEY. With Coloured Plates and other Illustrations. Six Books. 4d. and 6d. each. Complete Volume, 3s. 6d.
- Founders of the Empire.** A Biographical Reading Book for School and Home. By PHILIP GIBBS. Illustrated. 1s. 8d. Cloth, 2s. 6d.
- French-English and English-French Dictionary.** 3s. 6d. or 5s.
- Gaudemus.** Songs for Colleges and Schools. Edited by JOHN FARMER. 5s. Words only, paper covers, 6d.; cloth, 9d.
- Geography: A Practical Method of Teaching.** Book I., England and Wales, in Two Parts, 6d. each.
- Book II., Europe. By J. H. OVERTON, F.G.S. 6d. Tracing Book, containing 22 leaves, 2d.
- German Dictionary, Cassell's.** (German - English, English - German.) *Cheap Edition.* Cloth, 3s. 6d.; half-morocco, 5s.
- Hand and Eye Training.** By G. RICKS, B.Sc. Two Vols., with 16 Coloured Plates in each. 6s. each.
- Hand and Eye Training.** By GEORGE RICKS, B.Sc., and JOS. VAUGHAN. Illustrated. Vol. II., Cardboard Work, 2s. Vol. III., Colour Work and Design, 3s.
- Historical Cartoons, Cassell's Coloured.** Size 45 in. x 35 in. 2s. each. Mounted on Canvas and varnished, with Rollers, 5s. each.
- In Danger's Hour; or, Stout Hearts and Stirring Deeds.** A Book of Adventures for School and Home. With Coloured Plates and other Illustrations. Cloth, 1s. 8d.; bevelled boards, 2s. 6d.
- Latin-English and English-Latin Dictionary.** 3s. 6d. and 5s.
- Latin Primer, The First.** By Prof. POSTGATE. 1s.
- Latin Primer, The New.** By Prof. J. P. POSTGATE. Crown 8vo., 2s. 6d.
- Latin Prose for Lower Forms.** By M. A. BAYFIELD, M.A. 2s. 6d.
- Laws of Every-day Life.** By H. O. ARNOLD-FORSTER, M.A. 1s. 6d.
- Marlborough Books:—** Arithmetic Examples, 3s. French Exercises, 3s. 6d. French Grammar, 2s. 6d. German Grammar, 3s. 6d.
- Mechanics and Machine Design, Numerical Examples in Practical.** By R. G. BLAINE, M.E. *Revised and Enlarged.* Illustrated. 2s. 6d.
- Mechanics, Applied.** By J. PERRY, M.E., D.Sc., &c. Illustrated. 7s. 6d.

- Mechanics**, Cassell's Cyclopædia of. Edited by P. N. HASLUCK. 7s. 6d.
- Metric Charts**, Cassell's Approved. Two Coloured Sheets, 42 in. by 22½ in., illustrating by Designs and Explanations the Metric System. 1s. each. Mounted with Rollers, 3s. each. The two in one with Rollers, 5s. each.
- Models and Common Objects, How to Draw from.** By W. E. SPARKES. Illustrated. 3s.
- Models, Common Objects, and Casts of Ornament, How to Shade from.** By W. E. SPARKES. With 25 Plates by the Author. 3s.
- Object Lessons from Nature.** By Prof. L. C. MIALL, F.L.S. Fully Illustrated. *New and Enlarged Edition.* Two Vols., 1s. 6d. each.
- Physiology for Schools.** By A. T. SCHOFIELD, M.D., &c. Illustrated. Cloth, 1s. 9d.; Three Parts, paper, 5d. each; or cloth limp, 6d. each.
- Poetry for Children**, Cassell's. 6 Books, 1d. each; in One Vol., 6d.
- Popular Educator**, Cassell's. With Coloured Plates and Maps, and other Illustrations. 8 Vols., 5s. each.
- Readers, Cassell's Classical, for School and Home.** Illustrated. Vol. I. (for young children), 1s. 8d.; Vol. II. (boys and girls), 2s. 6d.
- Readers, Cassell's "Belle Sauvage."** An entirely New Series. Fully Illustrated. Strongly bound in cloth. (*List on application.*)
- Readers, Cassell's "Higher Class."** (*List on application.*)
- Readers, Cassell's Readable.** Illustrated. (*List on application.*)
- Readers for Infant Schools, Coloured.** Three Books. 4d. each.
- Reader, The Citizen.** By H. O. ARNOLD-FORSTER, M.A. Illustrated. 1s. 6d. Also a *Scottish Edition*, cloth, 1s. 6d.
- Reader, The Temperance.** By J. DENNIS HIRD. 1s. or 1s. 6d.
- Readers, Geographical**, Cassell's New. Illustrated. (*List on application.*)
- Readers, The "Modern School" Geographical.** (*List on application.*)
- Readers, The "Modern School" Illustrated.** (*List on application.*)
- Reckoning, Howard's Art of.** By C. FRUSHER HOWARD. Paper covers, 1s.; cloth, 2s. *New Edition.* 5s.
- Round the Empire.** By G. R. PARKIN. Fully Illustrated. 1s. 6d.
- R. H. S. Curves.** By Prof. R. H. SMITH. A Set of 23 Scaled Templates, with Pamphlet, 10s. 6d.
- Shakspeare's Plays for School Use.** 9 Books. Illustrated. 6d. each.
- Spelling, A Complete Manual of.** By J. D. MORELL, LL.D. Cloth, 1s. *Cheap Edition*, 6d.
- Spending and Saving: A Primer of Thrift.** By ALFRED PINHORN, 1s.
- Technical Manuals**, Cassell's. Illustrated throughout. Sixteen Books, from 2s. to 4s. 6d. (*List on application.*)
- Technical Educator**, Cassell's. With Coloured Plates and Engravings. Complete in Six Volumes. 3s. 6d. each.
- Technology, Manuals of.** Edited by Prof. AYRTON, F.R.S., and RICHARD WORMELL, D. Sc., M.A. Illustrated throughout. Seven Books from 3s. 6d. to 5s. each. (*List on application.*)
- Things New and Old; or, Stories from English History.** By H. O. ARNOLD-FORSTER, M.A. Illustrated. 7 Books from 9d. to 1s. 8d.
- This World of Ours.** By H. O. ARNOLD-FORSTER, M.A. Illustrated. *Cheap Edition.* 2s. 6d.
- Troubadour, The.** Selections from English Verse. Edited and Annotated by PHILIP GIBBS. 1s. 6d.
- Young Citizen, The; or, Lessons in our Laws.** By H. F. LESTER, B.A. Fully Illustrated, 2s. 6d. Also issued in Two Parts under the title of "Lessons in Our Laws." 1s. 6d. each.

## Books for Young People.

- A Sunday Story-Book.** By MAGGIE BROWNE. Illustrated. 3s. 6d.
- Animal Land for Little People.** By S. H. HAMER. Illustrated. 1s. 6d.
- Beneath the Banner.** Being Narratives of Noble Lives and Brave Deeds. By F. J. CROSS. Illustrated. Limp cloth, 1s. Cloth gilt, 2s.
- Beyond the Blue Mountains.** By L. T. MEADE. 5s.
- Bo-Peep.** A Book for the Little Ones. With Original Stories and Verses. Illustrated with Full-page Coloured Plates, and numerous Pictures in Colour. Yearly Volume. Picture Boards, 2s. 6d.; cloth, 3s. 6d.
- Good Morning! Good Night!** By F. J. CROSS. Illustrated. Limp cloth, 1s.; or cloth boards, gilt lettered, 2s.
- Heroes of Every-day Life.** By LAURA LANE. Illustrated. 2s. 6d.
- "Little Folks" Half-Yearly Volume.** Containing 480 pages, with Six Full-page Coloured Plates, and numerous other Pictures printed in Colour. Picture Boards, 3s. 6d. Cloth gilt, gilt edges, 5s. each.
- Little Mother Bunch.** By Mrs. MOLESWORTH. Illustrated. 2s. 6d.
- Magic at Home.** By Prof. HOFFMAN. Illustrated. Cloth gilt, 3s. 6d.
- Master Charlie.** By C. S. HARRISON and S. H. HAMER. Illustrated. Coloured boards, 1s. 6d.
- Micky Magee's Menagerie; or, Strange Animals and their Doings.** By S. H. HAMER. With Eight Coloured Plates and other Illustrations by HARRY B. NEILSON. 1s. 6d.
- Notable Shipwrecks.** *Revised and Enlarged Edition.* 1s. *Illustrated Edition.* 2s.
- Peter Piper's Peepshow.** By S. H. HAMER. With Illustrations by H. B. NEILSON and LEWIS BAUMER. 1s. 6d.
- Pleasant Work for Busy Fingers.** By MAGGIE BROWNE. Illustrated. 2s. 6d.
- Strange Adventures in Dicky Bird Land.** Stories told by Mother Birds to amuse their Chicks, and overheard by R. KEARTON, F.Z.S. With Illustrations from Photographs taken direct from Nature by C. KEARTON. Cloth, 3s. 6d. Cloth gilt, gilt edges, 5s.
- The Jungle School; or, Dr. Jibber-Jabber Burchall's Academy.** By S. H. HAMER. With Illustrations by H. B. NEILSON. 1s. 6d.
- The "Victoria" Painting Book for Little Folks.** Illustrated. 1s.
- "Tiny Tots" Annual Volume.** Boards, 1s. 4d. Cloth, 1s. 6d.
- Topsy Turvy Tales.** By S. H. HAMER. With Illustrations by HARRY B. NEILSON. 1s. 6d.
- Two Old Ladies, Two Foolish Fairies, and a Tom Cat.** The Surprising Adventures of Tuppy and Tue. A New Fairy Story. By MAGGIE BROWNE. With Four Coloured Plates and other Illustrations. 3s. 6d.
- Whys and Other Whys; or, Curious Creatures and Their Tales.** By S. H. HAMER and HARRY B. NEILSON. Paper boards, 2s. 6d. Cloth, 3s. 6d.

**CASSELL'S SHILLING STORY BOOKS.** All Illustrated, and containing

Interesting Stories.

A PAIR OF PRIMROSES.

ELLA'S GOLDEN YEAR.

LITTLE QUEEN MAE.

THE HEIRESS OF WYVERN COURT.

THEIR ROAD TO FORTUNE.

WON BY GENTLENESS.

**CASSELL'S EIGHTEENPENNY STORY BOOKS.** Illustrated.

ALL IN A CASTLE FAIR.

BY LAND AND SEA.

CLARE LINTON'S FRIEND.

DOLLY'S GOLDEN SLIPPERS.

HER WILFUL WAY.

IN THE DAYS OF KING GEORGE.

ON BOARD THE *ESMERALDA*.

THE BRAVEST OF THE BRAVE.

TO SCHOOL AND AWAY.

**BOOKS BY EDWARD S. ELLIS.** Illustrated. Cloth, 1s. 6d. each.

ASTRAY IN THE FOREST.

CAPTURED BY INDIANS.

RED FEATHER. A Tale of the  
American Frontier.

THE BOY HUNTERS OF KEN-  
TUCKY.

THE DAUGHTER OF THE CHIEFTAIN.  
WOLF EAR THE INDIAN.

**CASSELL'S TWO-SHILLING STORY BOOKS.** Illustrated.

A SELF-WILLED FAMILY.

DAISY'S DILEMMAS.

FLUFFY AND JACK.

LITTLE FOLKS' SUNDAY BOOK.

MR. BURKE'S NIECES.

PEGGY, AND OTHER TALES.

POOR NELLY.

THE MYSTERY OF MASTER MAX;  
AND THE SHRIMPS OF SHRIMPTON.

UNCLE SILVIO'S SECRET.

WRONG FROM THE FIRST.

**BOOKS BY EDWARD S. ELLIS.** Illustrated. Cloth, 2s. 6d. each.

A STRANGE CRAFT AND ITS WON-  
DERFUL VOYAGES.

BLAZING ARROW.

CAMP-FIRE AND WIGWAM.

CHIEFTAIN AND SCOUT.

COWMEN AND RUSTLERS.

DOWN THE MISSISSIPPI.

FOOTPRINTS IN THE FOREST.

IN RED INDIAN TRAILS.

IN THE DAYS OF THE PIONEERS.

IRON HEART, WAR CHIEF OF THE  
IROQUOIS.

KLONDIKE NUGGETS.

LOST IN THE WILDS.

NED IN THE BLOCK HOUSE. A

Story of Pioneer Life in Kentucky.

NED IN THE WOODS. A Tale of  
Early Days in the West.

NED ON THE RIVER. A Tale of  
Indian River Warfare.

PONTIAC, CHIEF OF THE OTTAWAS.

RED JACKET: THE LAST OF THE  
SENECAS.

SCOUTS AND COMRADES; OR, TECUM-  
SEH, CHIEF OF THE SHAWANOES.

SHOD WITH SILENCE.

THE CAMP IN THE MOUNTAINS.

THE GREAT CATTLE TRAIL.

THE HUNTERS OF THE OZARK.

THE LAST WAR TRAIL.

THE LOST TRAIL.

THE PATH IN THE RAVINE.

THE PHANTOM OF THE RIVER.

THE RUBBER HUNTERS (formerly  
UP THE TAPAJOS).

THE YOUNG RANCHERS.

TWO BOYS IN WYOMING.

UNCROWNING A KING.

**HALF-CROWN STORY BOOKS.**

ADAM HEPBURN'S VOW.

AN OLD BOY'S YARNS.

AT THE SOUTH POLE.

BY FIRE AND SWORD.

COST OF A MISTAKE.

FAIRY TALES IN OTHER LANDS.

FREEDOM'S SWORD.

HEROES OF THE INDIAN EMPIRE.

**HALF-CROWN STORY BOOKS** (continued) :—

- |                              |                              |
|------------------------------|------------------------------|
| LOST AMONG WHITE AFRICANS.   | ROGUES OF THE FIERY CROSS.   |
| LOST ON DU CORRIG.           | STRONG TO SUFFER.            |
| MASTER OF THE STRONG HEARTS: | THE QUEEN'S SCARLET.         |
| A STORY OF CUSTER'S LAST     | THE WHITE HOUSE AT INCH GOW. |
| RALLY.                       | THROUGH TRIAL TO TRIUMPH.    |
| NO. XIII.; OR, THE STORY OF  | TOLD OUT OF SCHOOL.          |
| THE LOST VESTAL.             | TO PUNISH THE CZAR.          |
| PERILS AFLOAT AND BRIGANDS   | TO THE DEATH.                |
| ASHORE.                      | WANTED—A KING; OR, HOW MERLE |
| PICTURES OF SCHOOL LIFE AND  | SET THE NURSERY RHYMES TO    |
| BOYHOOD.                     | RIGHTS.                      |

**BOOKS FOR THE LITTLE ONES.** Fully Illustrated.

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| CASSELL'S ROBINSON CRUSOE.        | THE OLD FAIRY TALES. With          |
| With 100 Illustrations. Cloth,    | Original Illustrations. Cloth, 1s. |
| 3s. 6d.; gilt edges, 5s.          |                                    |
| CASSELL'S SWISS FAMILY ROBIN-     | THE SUNDAY SCRAP BOOK. With        |
| SON. Illustrated. Cloth, 3s. 6d.; | Several Hundred Illustrations. Pa- |
| gilt edges, 5s.                   | per boards, 3s. 6d.                |

**ALBUMS FOR CHILDREN.** 3s. 6d. each.

- |                             |                                  |
|-----------------------------|----------------------------------|
| MY OWN ALBUM OF ANIMALS.    | AND PLAY. Containing Stories     |
| THE ALBUM FOR HOME, SCHOOL, | by Popular Authors. Illustrated. |

**THREE AND SIXPENNY STORY BOOKS FOR GIRLS.** Illustrated.

- |                               |                                 |                  |
|-------------------------------|---------------------------------|------------------|
| BOUND BY A SPELL. By the Hon. | A GIRL WITHOUT AM-              | } By Mrs.        |
| Mrs. Greene.                  | BITION.                         |                  |
| FIVE STARS IN A LITTLE POOL.  | MRS. PEDERSON'S NIECE.          | } Robson.        |
| By Edith Carrington.          | THE KING'S COMMAND; A STORY     |                  |
| A SWEET GIRL GRAD-            | FOR GIRLS. By Maggie Symington. | } By             |
| UATE.                         | A WORLD OF GIRLS; THE           |                  |
| BASHFUL FIFTEEN.              | STORY OF A SCHOOL.              | } Meade.         |
| MERRY GIRLS OF ENG-           | POLLY: A NEW-FASH-              |                  |
| LAND.                         | IONED GIRL.                     | } By Jessie Man- |
| RED ROSE AND TIGER            | THE PALACE BEAUTIFUL.           |                  |
| LILY.                         | SISTERS THREE.                  | } Horne Vaizey). |
| THE REBELLION OF LIL          | TOM AND SOME                    |                  |
| CARRINGTON.                   | OTHER GIRLS.                    |                  |

**THREE AND SIXPENNY STORY BOOKS FOR BOYS.** Illustrated. Cloth gilt.

- |                             |                                |
|-----------------------------|--------------------------------|
| "FOLLOW MY LEADER." By Tal- | THE RED TERROR: A STORY OF THE |
| bot Baines Reed.            | PARIS COMMUNE. By Edward King. |
| FOR FORTUNE AND GLORY: A    | THE THREE HOMES. By the Very   |
| STORY OF THE SOUDAN WAR.    | Rev. Dean Farrar.              |
| By Lewis Hough.             | UNDER BAYARD'S BANNER. By      |
| FOR GLORY AND RENOWN. By D. | Henry Frith.                   |
| H. Parry.                   | UNDER THE GREAT BEAR. By       |
| THE CAPTURE OF THE "ES-     | Kirk Munroe.                   |
| TRELLA": A TALE OF THE      | WITH CLAYMORE AND BAYONET.     |
| SLAVE TRADE. By Commander   | By Colonel Percy Groves.       |
| Claud Harding, R.N.         | WITH REDSKINS ON THE WAR-      |
|                             | PATH. By S. Walkey.            |

CASSELL & COMPANY'S COMPLETE CATALOGUE WILL BE SENT POST FREE ON APPLICATION TO  
CASSELL & COMPANY, LIMITED, Ludgate Hill, London.







New Cover  
10-02



